CITY OF
BAINBRIDGE ISLAND

PLANNING COMMISSION
REGULAR MEETING
THURSDAY, JANUARY 12, 2017
7:00 – 8:30 PM
COUNCIL CHAMBER
280 MADISON AVE N
BAINBRIDGE ISLAND, WA 98110

AGENDA

7:00 PM **CALL TO ORDER**
Call to Order, Agenda Review, Conflict Disclosure

7:05 PM **REVIEW AND APPROVAL OF MINUTES**
October 5, 2016
October 13, 2016

7:10 PM **PUBLIC COMMENT**
Accept public comment on off agenda items

7:20 PM **MONTESSORI COUNTRY SCHOOL SITE PLAN & DESIGN REVIEW/CONDITIONAL USE PERMIT (PLN 17677 SPR/CUP*)**
Recommendation

8:25 PM **NEW/OLD BUSINESS**

8:30 PM **ADJOURN**

*Please note links to permit application files provided in agenda item.

*****TIMES ARE ESTIMATES*****

Public comment time at meeting may be limited to allow time for Commissioners to deliberate. To provide additional comment to the City outside of this meeting, e-mail us at pcd@bainbridgewa.gov or write us at Planning and Community Development, 280 Madison Avenue, Bainbridge Island, WA 98110

For special accommodations, please contact Jane Rasely, Planning & Community Development 206-780-3758 or at jrasely@bainbridgewa.gov

Planning Commission
Regularly Scheduled Meeting Minutes
Wednesday, October 5, 2016

CALL TO ORDER – Call to Order, Agenda Review, Conflict Disclosure
REVIEW AND APPROVAL OF MINUTES - Multiple
PUBLIC COMMENT – Accept public comment on off agenda items
2016 COMPREHENSIVE PLAN UPDATE – Deliberations and Recommendations
NEW/OLD BUSINESS
ADJOURN

CALL TO ORDER – Call to Order, Agenda Review, Conflict Disclosure
Chair Mack Pearl called the meeting to order at 6:32 PM. Commissioners in attendance were Michael Lewars, Maradel Gale, Michael Killion, and Lisa Macchio. William Chester was absent and excused. City Staff present were Planning Director Gary Christensen, Engineering Manager Chris Hammer, Senior Planner Jennifer Sutton and Administrative Specialist Jane Rasely who monitored recording and prepared minutes. City Consultant Joseph Tovar was also in attendance.

REVIEW AND APPROVAL OF MINUTES - Multiple

Motion: I move that we approve the minutes from the May 26, 2016 meeting.
Gale/Quitslund: Passed Unanimously 5-0

Motion: I move approval of the minutes for the meeting of May 12, 2016 as corrected that Commissioner Macchio was not present.
Quitslund/Killion: Passed Unanimously 4-0, 1 abstention

Motion: I move that we approve the minutes of the regular Planning Commission meeting of Thursday June 9, 2016.
Killion/Quitslund: Passed Unanimously 5-0

Motion: I move we approve the minutes from June 16, 2016.
Macchio/Lewars: Passed Unanimously 4-0

Motion: I move that we approve the minutes from our meeting of June 23, 2016.
Lewars/Gale: Passed Unanimously 5-0

Motion: I move that we accept as distributed the regularly scheduled meeting minutes from July 14, 2016.
Gale/Quitslund: Passed Unanimously 5-0

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Motion: I move adoption of the minutes for the meeting of July 28, 2016 as distributed.
Quitslund/Killion: Passed Unanimously 5-0

Motion: I make the motion to approve the August 4, 2016 minutes.
Macchio/Quitslund – Passed Unanimously 4-0

Motion: I move we approve the August 11, 2016 minutes as distributed.
Killion/Lewars: Passed Unanimously 5-0

Motion: I move that we approve the minutes of our meeting on August 18, 2016.
Lewars/Gale: Passed Unanimously 5-0

Motion: I move we approve as distributed the minutes from our regular meeting on September 8, 2016.
Gale/Quitslund: Passed Unanimously 5-0

Motion: I move adoption of the public hearing minutes as on September 17, 2016 as distributed.
Quitslund/Killion: Passed Unanimously 5-0

I move that we approve the minutes of the public hearing from September 22, 2016
Killion/Macchio: Passed Unanimously 5-0

PUBLIC COMMENT – Accept public comment on off agenda items
None.

2016 COMPREHENSIVE PLAN UPDATE – Deliberations and Recommendations
Ms. Sutton gave an overview of the work to be done and asked if the Commissioners wanted to organize their work in any particular manner. Commissioner Macchio stated she would like to hear a couple of general comments from each Commissioner before digging into the details. Commissioner Quitslund mentioned he had to leave at 7:20 PM. Commissioners Gale and Macchio thought the Island-Wide Transportation Plan was not quite ready for approval and discussion should be put off on that. Mr. Christensen stated Mr. Hammer was present to let the Planning Commission know the City's responses to public comment and suggestions. Mr. Hammer told the Commissioners he had reviewed the letter from the Bainbridge Island Land Trust and provided a handout of Connectivity Improvements. Mr. Hammer went through the edits/changes after explaining he had looked at each issue from two perceptions: motorized and non-motorized. The Commissioners questioned the need for a list of road ends that could potentially become thru streets. Discussion of whether the whole section should be dropped

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from the Comprehensive Plan since it was not a required part occurred. The Commissioners agreed to keep items 1, 2 18 and 19 on the motorized plan and strike the rest.

Deliberation continued with the Cultural Element. Financial support was a main topic for consideration with Commissioner Macchio making a plea to keep the funding for art funding to stay with on-island artists. Neighborhood Centers were discussed with the Fort Ward neighborhood being removed and the Day Road and the Sportsman Triangle given designations of Light Manufacturing Centers. Chair Pearl stated he felt the Island Center sub-area planning process should be moved up to first priority. Commissioner Gale felt the Winslow sub-area plan needed to still retain importance as well. Comprehensive Plan Amendments were reviewed and a final action on the applications was given.

> **Motion: I move that we recommend denial of the Thomas request.**
> **Gale/Lewars: Passed Unanimously 4-0**
>
> **Motion: I move that we recommend denial of the Cainion request.**
> **Gale/Macchio: Passed Unanimously 4-0**

Commissioner Lewars requested Staff communicate to Mr. Cainion what the intent was to move ahead with the Special Planning Process so he knows he has been heard and was not being dismissed out of hand.

> **Motion: I move that we recommend denial of the Anderson request.**
> **Gale/Lewars: Passed Unanimously 4-0**
>
> **Motion: I move to have business industrial property located at the intersection of Fletcher Bay, Bucklin Hill and Lynwood Center Roads when our Plan expressly states that this kind of property needs to be in reasonable proximity of 305, I move that the Planning Commission recommend denial of that change.**
> **Gale/Macchio: Passed Unanimously 4-0**
>
> **Motion: I move that we recommend denial of the Parks District's request to change all the parks' zoning to parks.**
> **Gale/Killion: Passed Unanimously 4-0**

In addressing Charles Schmid's amendment request that Pritchard Park be re-designated Residential instead of Water Dependent Industrial, the Commissioners spoke about buffers, docks and development on the shoreline which was dependent upon what the land use designation was. There was also a question of whether Mr. Schmid had the standing required to submit a Comprehensive Plan Amendment application. Conversation then turned to the differences in site screening provided by required buffers.

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Sarah Blossom, City Council – Spoke on behalf of herself, not as a Council Person seeking to influence them. She gave some background on the Tree Committee. When they were looking at the City's buffers they specifically looked at that site and increased the buffer to what they thought was appropriate probably more than a year ago. Chair Pearl confirmed that was 25 feet. Ms. Blossom agreed and said they had increased it by 15 feet. She informed the Commissioners that the Tree Committee had already looked at the buffers and what they were seeing was an increase the Tree Committee thought was appropriate.

> **Motion: I move we recommend denial by reason that the two property owners and others who have an interest in this (did not request the amendment but) recognize the concern and believe it is being dealt with by the expanded buffer.**
> **Gale/Killion: Passed Unanimously 4-0**

Chair Pearl began a discussion of changing "Cluster Development" to "Conservation Village." Discussion of density bonuses and their necessity with the new Low Impact Development regulations beginning in 2017. Language regarding the frequency with which the Comprehensive Plan may be updated was suggested for the Introduction. "Designated Centers" was explained as an umbrella term that encompassed two types of centers: Winslow and Neighborhood Centers.

The Commissioners discussed the work the Drafting Committee would perform at their next meeting on October 6. 2016. Ms. Sutton confirmed which Commissioners would like a paper copy of the Comprehensive Plan for the following week.

NEW/OLD BUSINESS
None.

ADJOURN
The meeting was adjourned at 8:55 PM.

Approved by:

_____ _____
J. Mack Pearl, Chair Jane Rasely, Administrative Specialist

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Planning Commission
Regularly Scheduled Meeting Minutes
Thursday, October 13, 2016

CALL TO ORDER – Call to Order, Agenda Review, Conflict Disclosure
PUBLIC COMMENT – Accept public comment on off agenda items
2016 COMPREHENSIVE PLAN UPDATE – Deliberations and Recommendations
NEW/OLD BUSINESS
ADJOURN

CALL TO ORDER – Call to Order, Agenda Review, Conflict Disclosure
Chair Mack Pearl called the meeting to order at 6:34 PM. Commissioners in attendance were Maradel Gale, Jon Quitslund, Michael Killion and Lisa Macchio. Michael Lewars and William Chester were absent and excused. City Staff present were Planning Director Gary Christensen, Senior Planner Jennifer Sutton, Administrative Specialist Jane Rasely (who monitored recording and prepared minutes) and Consultant Joseph Tovar.

The agenda was reviewed. There were not any conflicts disclosed.

PUBLIC COMMENT – Accept public comment on off agenda items
None.

2016 COMPREHENSIVE PLAN UPDATE – Deliberations and Recommendations
Chair Pearl asked the Commissioners if they had a chance to read over the additions to the agenda today. Ms. Sutton asked the Drafting Committee members to describe the process they went through to come up with this draft. Commissioner Gale stated they had gone through every single public comment and asked themselves if the comments fit, should require a change or should not be incorporated at this time. Commissioner Macchio began with her comments/questions for everyone saying she had only a few. Each Commissioner took their turn providing comments for the changes made after the last Planning Commission meeting. The Economic Element was discussed first with a lot of attention paid to Goal EC-3. Each Element was reviewed in turn with each Commissioner having the chance to provide their comments, concerns and questions to the group. During discussion about the Transportation Element, the Island-Wide Transportation Plan (IWTP) and the desire of the public to provide comment on it before it was finalized was brought up. Mr. Christensen suggested they make a list of their concerns with the IWTP to bring to the attention of City Council as opposed to trying to rewrite the document. Commissioner Macchio stated she was not comfortable with a blanket endorsement of the IWTP. The Commissioners decided to come back to the Transportation Element again at their next meeting and stated they would not pass that Element along to City Council this week.

Mr. Christensen began a discussion on the proposed expansion of the Planning Commission's role in long plat subdivisions. This sparked a conversation on how to improve the City's Code so that "undesirable" development did not take place.

Motion: I move that we forward to the Council the revised Public Hearing Draft as changed tonight and with minor typo fixes along with Ordinance 2016-29 and Ordinance 2016-30. The Planning Commission is not finished with its examination of the IWTP which potentially has impacts on the Transportation Element and Capital Facilities Element and so they request Council wait until they hear from them on that.
Gale/Killion: Passed Unanimously 4-0

NEW/OLD BUSINESS
None.

ADJOURN
The meeting was adjourned at 9:36 PM.

Approved by:

_____ _____
J. Mack Pearl, Chair Jane Rasely, Administrative Specialist

CITY OF BAINBRIDGE ISLAND

Department of Planning and Community Development

Staff Recommendation

Date: December 21, 2016

To: Planning Commission

From: Kelly Tayara, Planner

Project: Montessori Country School

File No: PLN 17677 SPR / CUP

Applicant: Montessori Country School
10994 Arrow Point Drive NE
Bainbridge Island, WA 98110

Request: Increase campus student population from 83 to 146 and staff from 10 to 18. Construct six new buildings (in addition to the existing building), expanding floor area from 3,550 square feet to 11,853 square feet. Modify existing parking lot and access drive dimensions.

Location: 110994 Arrow Point Drive

Consolidated Project Review:

In accordance with regulations contained in BIMC 2.16.170, an applicant for a single project proposal requiring more than one of the land use applications identified in BIMC 2.16.010 may be processed under the consolidated project review process. The applicant requests consolidated review of the applications for Site Plan and Design Review and Conditional Use Permit.

Public Notice / Environmental Review:

A pre-application conference was held on October 20, 2015. A public participation meeting was held on January 4, 2016. Applications for Site Plan Review and Conditional Use Permit were received on June 15, 2016; the applications were deemed complete on July 5, 2016.

The project is subject to State Environmental Policy Act (SEPA) review as provided in Washington Administrative Code (WAC 197-11-800). Utilizing the **optional DNS process** provided in WAC 197-11-355, the City issued a combined Notice of Application/SEPA comment period on July 15, 2016. The 14-day comment period ended on July 29, 2016; public comment is discussed in Section I.C. of this report. The City, acting as lead agency, issued a SEPA threshold determination for this proposal on December 21, 2016.

Planning Commission Review:

The Planning Commission shall provide recommendation to the Hearing Examiner pursuant to BIMC 2.14.020, BIMC 2.16.040.C.2, and BIMC 2.16.110.C.

Recommendation:

Approval of the request subject to the following conditions:

SEPA CONDITIONS

1. To avoid impacts to vegetation, no construction activity shall occur in landscape buffers or within the critical root zone of significant trees within landscape buffers, including staging, storage, materials laydown, parking, construction vehicle turnaround, or equipment.

2. To avoid impacts to historic and cultural resources, work shall immediately stop if any historical or archaeological artifacts are uncovered during excavation or construction and the Department of Planning and Community Development and the Washington State Office of Archaeology and Historic Preservation shall be immediately notified. Construction shall only continue thereafter in compliance with the applicable provisions of law.

PROJECT CONDITIONS

3. Except for modifications reflecting compliance with these conditions of approval, building plans shall substantially conform to plans submitted on June 15, 2016, except as follows: Sheet A-0.1 submitted on July 11, 2016; Sheet C2 submitted on November 14, 2016.

4. Prior to any construction activities, the applicant shall obtain the appropriate permits from the City of Bainbridge Island, including but not limited to clearing, grading, and/or building permits.

5. The project shall comply with the following conditions of the City Engineer:
   a. Final civil improvement plans shall be submitted with a building permit application. Upon approval to construct, all necessary infrastructure serving the site must be completed prior to the first final building inspection.
   b. As-built civil construction plans stamped by a civil engineer shall be provided by the applicant prior to the first final building inspection.
   c. The preconstruction condition of Arrow Point Drive fronting the property shall be photo-documented to the satisfaction of the City Engineer prior to issuance of any permit. Prior to the final inspection of the final building damage to the road caused by heavy construction equipment and traffic shall be fixed by the permit holder.
   d. Shoulder improvements along the frontage of Arrow Point Drive are required as a condition of development to include construction of a three-to-five foot width gravel shoulder.
   e. Paved driveway aprons matching the surfacing on Arrow Point Drive shall be provided from the roadway for a distance of 20 feet from the edge of the Arrow Point pavement.
   f. A maintenance plan for the internal roadway and parking lot is required with the first building permit. Track-out of dirt and silt from the site onto the roadway is not allowed. Cloudy runoff leaving the site is not allowed.
   g. The applicant shall submit an operation and maintenance plan for the on-going maintenance of the storm drainage systems to the satisfaction of the City Engineer with the first building permit application.
   h. All on-site stormwater facilities shall remain privately owned and maintained. The owner shall be responsible for maintenance of the storm drainage facilities for this development following construction. Annual inspection and maintenance reports shall be provided to the City. A

recorded Declaration of Covenant for stormwater system operation and maintenance will be required prior to the first final building inspection. The approved language for the Declaration of Covenant is found in BIMC Chapter 15.21, Exhibit A.

i. Prior to the first final building inspection on the site the applicant shall provide a recorded covenant protecting the forested area as identified in Sheet C2 Utility and Drainage Plan submitted to the City on November 14, 2016. The proposed drainfield area and reserve drainfield area should not be included in the covenant.

j. A right-of-way construction permit is required prior to any construction activities within the right-of-way. The right-of-way permit is subject to separate conditions and bonding requirements.

k. A Stormwater Conveyance System Connection Application shall be submitted with the right-of-way construction permit application for locations where stormwater will enter the City system.

l. The project requires a Construction Stormwater General Permit from the Washington State Department of Ecology. No land clearing or construction permits shall be issued prior to obtaining the State permit.

6. The project shall comply with the following conditions of the Fire Marshal:

   a. In lieu of fire flow the following conditions apply:

      i. The project shall be equipped throughout with a monitored fire alarm system.

      ii. All classrooms shall exit directly outside.

      iii. Occupant load for any room shall not exceed 50.

   b. Any building or room with an occupant load greater than 50 shall be equipped with an automatic fire sprinkler system. Occupant load shall be determined by the Building Official.

   c. Any building or room with an occupant load greater than 50 shall be equipped with panic hardware on approved exit doors.

   d. All access roads shall be designed to accommodate fire apparatus (load, width, grade, angle of approach and departure).

   e. Minimum 12-foot access road width shall not be diminished by parked vehicles. No Parking / Fire Lane signage is required in areas where this could occur.

   f. Fire lane on north side of property shall be marked 'No Parking / Fire Lane'.

   g. All fire apparatus access roads shall have a clear overhead height of not less than 13.5 feet.

7. Prior to any construction activity, including grading and/or vegetation removal, the applicant shall provide construction plans that identify areas of prohibited disturbance which are necessary to preserve ecological function, including but not limited to: The dripline or critical root zone (as identified by a consulting arborist) of retained trees, future raingarden areas, and future planting areas which are larger than 400 square feet in size.

8. Prior to construction permit issuance, fencing shall be erected and posted with signage to protect areas of prohibited disturbance. Fencing shall remain in place until construction is complete, and removal shall be subject to approval of the Planning Division. No construction activities, including grading and/or vegetation removal, shall occur prior 'area of disturbance' plan approval, and inspection and approval of the fencing installation, by the Planning Division.

9. Temporary chain link fence a minimum five feet in height with tubular steel poles or “T” posts shall delineate the area of prohibited disturbance in the following locations:
    a. The perimeter boundary of the portion of the roadside buffer which is located south of the walkway. The fencing shall provide for the driveway through the buffer. Special care shall be taken to protect the significant trees and vegetation adjacent to the driveway.
    b. The west boundary of the portion of the roadside buffer which is located north of the walkway. The fencing shall provide for the driveway through the buffer. Special care shall be taken to protect the significant trees, vegetation, and rain garden area adjacent to the driveway.
    c. The north boundary of the buffer along the south side of the parking lot. The fencing should connect to the fencing along the south side of the south drive, and continue to the eastern extent of the three southern parking spaces.
    d. The north boundary of the buffer along the south side of the toddler play area.
    e. The east boundary of the buffer along the west side of the sport court / future classroom.
10. Orange plastic fencing shall delineate the perimeter of the roadside buffer where chain link fencing is not required.
11. A total of six bicycle spaces must be provided at a minimum. Bicycle facilities shall allow secure locking of both the frame and wheels of a bicycle.
12. Landscape buffers shall be maintained for the life of the project.
13. New plantings shall be the following heights at time of planting: Evergreen trees shall be not less than six feet in height; Deciduous trees shall be not less than two-inch dbh; Evergreen shrubs shall be not less than 18 inches in height.
14. All plantings shall be installed or installation financially assured in accordance with BIMC 18.15.010.H. prior to occupancy of any of the new buildings. Subsequent to installation approval by the Department, maintenance assurity shall be required in accordance with BIMC 18.15.010.H.
15. Internal walkways shall be surfaced with nonskid hard surfaces, meet handicapped-accessibility requirements and be designed to provide a minimum of five feet of unobstructed width.
16. Where walkways cross vehicular driving lanes, the walkways shall be constructed of contrasting materials or with maintained painted markings. The walkway adjacent to the pick-up / drop-off lane shall be curbed and raised six inches above adjacent vehicular surface grade, except where required to meet accessibility standards.
17. Raised curbs shall be used to define driveways from the public right-of-way, landscape areas within the parking lot, the ends of parking aisles, and the vehicular circulation pattern.
18. Outdoor lighting fixture shall meet the standards contained in BIMC 18.15.040.
19. Outdoor trash / recycle receptacles shall be enclosed with a solid structure / gated and screened from view with evergreen vegetation.
20. Prior to building permit issuance, the landowner must record a notice on title listing these conditions of approval with the Kitsap County Auditor.

Staff Analyses

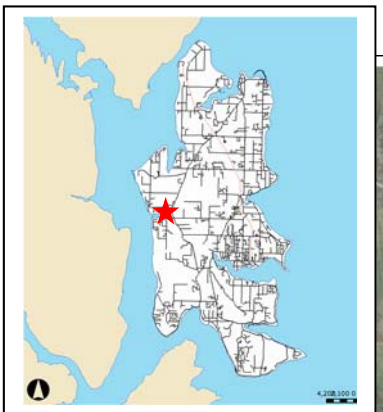
I. Findings of Fact

A. Site Characteristics

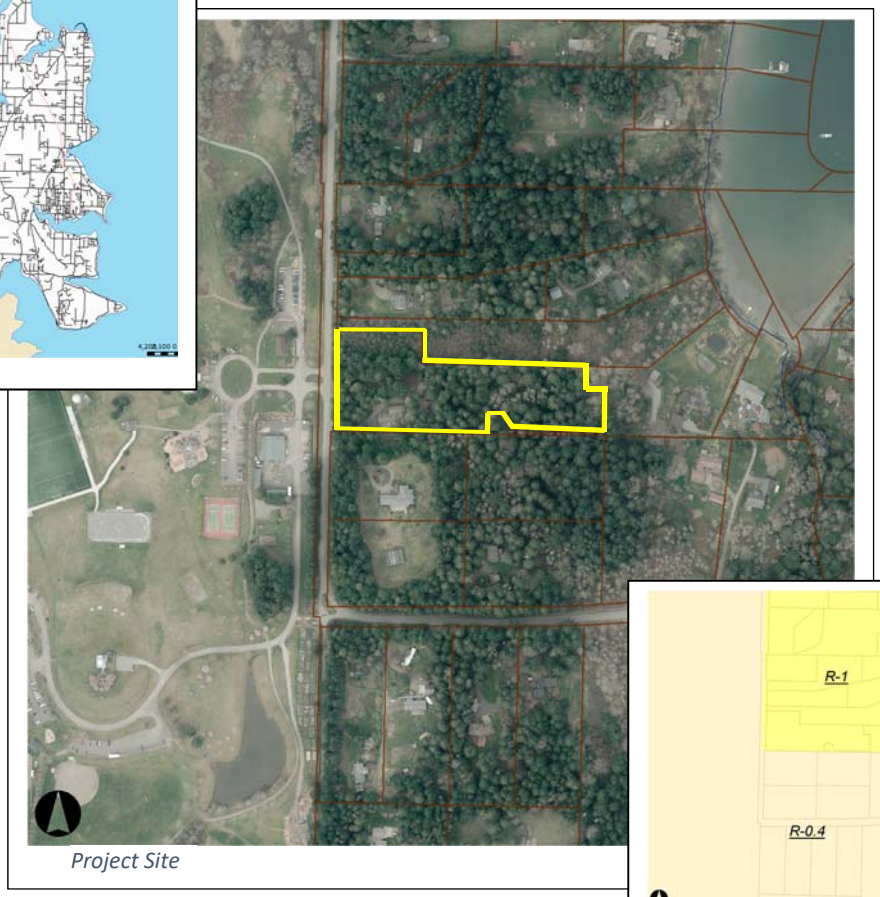
1. Tax Assessor Information:
   a. Tax Lot Number: 172502-1-087-2000
   b. Owner of record: Montessori Country School
   c. Lot size: 4.38 acres
   d. Land use: Community and Educational / Educational Facility

2. Background

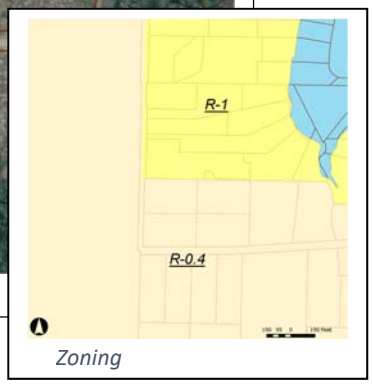
The Montessori Country School is a non-profit private school that is currently located on two campuses. The school requests approval to expand the Arrow Point Drive campus in order to serve the entire student population on one site. In 1990, the school received approval from Kitsap County for a revision to an Unclassified Use Permit, approving two preschool sessions per weekday with a maximum of 34 students per session, and an elementary program with a maximum of 30 students (a total of 98 students).



Vicinity Map



Project Site



Zoning

3. Zoning and Comprehensive Plan Designation: The subject property is within the R-1 district and the Open Space Residential (OSR-1) designation. The properties to the north and east are also zoned R-1 and the Comprehensive Plan Designation is OSR-1. The properties to the west, across Arrow Point Drive, and to the south are zoned R-0.4 district and the Comprehensive Plan designation for these properties is OSR-0.4.

4. Existing Development: The property contains a private school campus with a school building and associated development including a parking lot and playground. The property to the north is undeveloped. The property to the east contains single-family residential development. The property to the west is a public park (Battle Point Park). To the south, both properties contain single-family residential development.

5. Access: Vehicular access is provided from Arrow Point Drive via a one-way loop.

6. Soils and Terrain:

   Site soils are composed of ice-contact deposits overlying Vashon till. The existing school building, parking lot and playground are located in the southwest portion of the site and the existing septic system is located in the southern portion of the site. The remainder of the site is heavily wooded with second growth forest.

   The topography of the west third of the site is relatively flat. The remainder of the site slopes from west to east with inclinations ranging from 10 to 40 percent.

   A small area in the middle of the site contains a slope that exceeds 40 percent. The area has no individual section greater than ten feet in height. The geotechnical reconnaissance indicates that this slope is relatively stable, no groundwater seepage was observed, and no adverse geologic strata sequence was evident. The geotechnical engineer concluded that there are no geologically hazardous areas.

7. Public Services and Utilities:
   a. Police: City of Bainbridge Island Police Department
   b. Fire: Bainbridge Island Fire District
   c. Water: On-site Well
   d. Sewer / Septic: On-site Septic
   e. Storm drainage: On-site dispersion is proposed for the east side of the site, and on-site detention for the west side.

B. Comprehensive Plan Goals and Policies

1. Land Use Element

   a. Historic Preservation - Goal 3

      Archaeological resources should be identified, preserved, and / or left undisturbed.

      Should any historical or archaeological artifacts be uncovered during excavation or construction, project work must stop and the applicant must notify the Department of Planning and Community Development and the Washington State Office of Archeology and Historic Preservation. (Condition 2)

2. Economic Element

   a. Economic Element - Goal 1

      Retain and enhance a diversified local economy. The City should embrace diverse and innovative business opportunities compatible with the community and develop programs to make Bainbridge Island an attractive location for those businesses.

      The redevelopment provides for expansion of a private not-for-profit elementary and pre-school educational facility.

   b. Economic Element - Goal 5

      Encourage a broad range of civic activities and organizations. Support the non-profit sector of human and social service providers.

      The school partners with One Call for All, an umbrella organization that provides funding to over 100 Bainbridge Island non-profits. The school also supports Raising Resilience, a non-profit which offers parenting education and resources, and lends space to provide parenting classes that are open to the general public, as well as meeting space for the Resilience Guild. Additionally, the school dedicates ten percent of its budget to student financial aid.

      Montessori Country School students and staff participate in a variety of community service activities including food drives and visits to local assisted-living facilities. The school provides volunteers for the Friends of the Farm annual harvest fair, an educational event that celebrates local farming, and the Bainbridge Island Rotary Club annual auction, an event that last year raised over $557,000 to fund local nonprofit organizations, community service and international humanitarian projects and vocational scholarships.

3. Cultural Element

   a. Arts Education - Goal 2

      Demonstrate commitment to quality arts education and lifelong learning by advocating for comprehensive inclusion of the arts in our schools and community settings. Support a comprehensive quality arts education program in the schools and the community.

      The development provides for expansion of the existing music and art program. The redevelopment affords a building dedicated to the fine arts, and the new commons building provides room for music classes.

   b. Humanities - Goal 7

      Foster the spirit of community in which the richness of human experience is explored and nurtured through ongoing analysis and exchange of ideas about the relation to self, others and the natural world.

      The school relies on the natural environment to address Montessori education principles and methods. The Montessori program responds to individual stages of child development by providing carefully prepared environments and experiences that meet students' needs.

The project emphasizes outdoor spaces and the discovery of the natural world. For example: The proposed development provides playgrounds with all-natural materials, a campus with trails through a natural environment, and the school relies on its proximity to Battle Point Park to further interaction with the natural environment; Buildings are oriented to capture natural light and are designed to avoid competition with the natural setting.

C. Public / Agency Comment

Two public comments were received:

1. One commenter requested assurance that the well, septic and stormwater facilities are adequate to serve the project and avoid impacts to neighboring properties and the shoreline. Additionally, the commenter stated that there may be a small wetland in the woods on the property south of the subject property.

   As originally proposed, stormwater was directed to an off-site stormwater pond with outfall to the Puget Sound; as this is prohibited in the Shoreline Master Program (largely because of the category of aquatic environment), the applicant revised the stormwater plan. The City Engineer finds that the revised plan conforms to surface and stormwater requirements, will not cause undue burden on the drainage basin, and will not unreasonably interfere with the use and enjoyment of properties downstream. The Health District approved the application, and finds proposed water and septic facilities adequate to serve the development. Staff observed no wetland on the neighboring property.

2. One comment stated that noise levels emanating from the children's play area may potentially impact telephone conversations held in a virtual office located within a residence which is adjacent to the subject property.

   The commenters' residence was constructed in 2015. The existing play area on the subject property is 170 feet from the commenters' residence. No change to the play area or playground equipment is proposed within 270 feet of the residence; the proposed development adds a toddler lot located 270 feet west of the commenters' home and two play fields beyond that distance.

   Based on the comment letter, current playground activities are not disruptive, but noise levels resulting from the redevelopment could potentially impact the commenters' business conversations. As there is no change proposed to playground equipment or play area within 270 feet of the home, and additional equipment and play fields are proposed outside that distance, one may reasonably conclude that the existing play area and equipment that lies between 170 and 270 feet of the residence will support the same number of users subsequent to redevelopment. Additionally, there is a vegetated swath 55 feet in width between the play area and the commenters' property, and an additional 25 foot width vegetation buffer on the commenters' property.

   Noise levels exceeding 70 decibels are loud enough to be considered annoying, intrusive, and interfere with telephone use. By comparison, the sound of a dishwasher is 80 dba at a distance of 16 feet; 70 dba is the sound emanating from a freeway at a distance of 50 feet. Noise levels of children on playgrounds can approach 115 dba, equivalent to the level of noise experienced standing three feet from a power mower.[1]

Decibel levels are reduced by approximately 6 dba for every doubling of the distance from the noise source: At a distance 200 feet, sounds emanating from play areas are reduced to less than 85 dba. The exterior walls of a home typically provide noise level reduction of 25 – 30 dba, reducing the sounds from the play areas to 60 – 65 dba inside the residence, the level of noise typical for an office environment and below noise levels considered to interfere with telephone conversations.[2]

The Kitsap Public Health District approved the application, and subsequent building permits are subject to Health District approval. The Bainbridge Island Fire District approved the project as conditioned. (Condition 4)

D. Land Use Code Analysis

1. BIMC Title 18 Zoning

a. BIMC 18.09.020 Use Table

Educational facilities are conditional uses in the R-1 district, and shall be processed as major conditional uses in residential zones (BIMC 18.09.030). Kitsap County granted an Unclassified Use Permit to the Montessori Country School in 1990. The private school serves preschool and elementary-age children. This application includes a request to amend the existing Conditional Use Permit.

b. BIMC 18.12.020-2 Standard Lot Dimensional Standards for Residential Districts

i. Lot Size, Lot Coverage and Building Height Requirements

Minimum lot size is 40,000 square feet in the R-1 district, and minimum lot width is 80 feet. Lot coverage is the portion of the lot area that may be covered by buildings (BIMC 18.12.050.K). Maximum lot coverage for lots in the district is 15 percent provided, institutions located in residential districts may not exceed 50 percent of the allowable lot coverage (i.e. 7.5 percent). Maximum building height is 30 feet.

The lot is 4.38 acres in size, and therefore meets the minimum lot size requirement. The lot width well exceeds the required 80 feet. Proposed lot coverage is 13,660 square feet 7.1 percent of lot area, and therefore meets this requirement. All existing and proposed buildings are less than 30 feet in height.

ii. Setbacks

The front lot line setback is a minimum of 25 feet. The minimum side setback is ten feet, and side setbacks must total 25 feet. The rear lot line setback is a minimum of 15 feet.

A portion of the existing school building that is less than 70 square feet in size encroaches up to three feet into the side setback along the south property line. All other existing or proposed structures within the setbacks such as fencing and walkways are permitted setback modifications as provided in BIMC Table 18.12.040. All proposed buildings are well outside required setbacks.

c. BIMC 18.15.010 Landscaping, Screening, and Tree Retention, Protection, Replacement

A 25 foot width full screen buffer is required along the perimeter of the property for non-residential use in residential districts; this buffer may be averaged to provide not less than a ten foot width to accommodate a unique situation, such as continuation of an existing use. A 25 foot width partial screen is required along rights-of-way; this buffer may be averaged to provide not less than a 15 foot width. The site must have at least 40 tree units per acre following redevelopment (BIMC 18.15.010.G.4.ii).

Parking lots adjacent to the right-of-way must provide one tree for every four parking stalls; a minimum of 30 percent of the trees must be evergreen. Deciduous trees must be at least two-inch caliper and evergreen at least six feet high at time of planting. Evergreen shrubs must be at least 18 inches in height at time of planting and spaced no more than three feet on center to provide a continuous hedge. Evergreen ground cover must be planted and spaced to achieve total coverage within two years. The parking lot must provide a landscaped area at the end of parking aisles.

To protect retained vegetation within buffers, raingarden areas, and planting areas which are larger than 400 square feet in size, the applicant must identify areas of prohibited disturbance, generally corresponding to the dripline or critical root zone of the trees as identified by a consulting arborist. A temporary five-foot high chain link fence with tubular steel poles or "T" posts shall delineate the area of prohibited disturbance, unless the Director approves use of a four-foot high plastic net fence as an alternative, and the fencing must be posted with signage denoting the protection area.

Buffer averaging reduces buffer widths along the northwest and southwest from 25 feet to 15 feet in three locations for a total area of 7,650 square feet. Buffer widths are increased along the northeast, southeast and east property boundaries to provide a contiguous 35 foot width boundary, for a total area 8,700 square feet in size. The averaging takes into account existing development within the required buffers, including parking areas, a portion of a building, and fencing around the play area along the south boundary, and provides for utilities along the north boundary.

The proposed development provides adequate parking lot and buffer landscaping. The project is conditioned to identify areas of prohibited disturbance, and to adequately protect those areas. (Conditions 1, 5 – 8, 10 - 12)

d. BIMC 18.15.020 Parking Spaces Required

Elementary school must provide one space per 50 students and one space per employee. Parking lots must comply with State minimum requirements for handicapped-accessible parking spaces. Above-ground parking lots exceeding the number of spaces required by this section are not allowed unless approved by the Planning Commission.

The proposed development serves 146 students and 18 staff. The required parking is 21 spaces. The proposed parking lot provides 26 spaces, including one handicapped-accessible parking space. Additionally, to accommodate all-school event parking, such as an open house, the school has a parking agreement with the Bainbridge Island Metropolitan Parks District to use the parking facilities at Battle Point Park which lies across Arrow Point Drive.

e. BIMC 18.15.030 Mobility and Access

i. Circulation and Walkways for Non-residential Development

Parking lots and driveways shall provide well-defined, safe and efficient circulation for motor vehicles, bicycles and pedestrians. Entrances from the right-of-way, ends of parking aisles and the circulation pattern shall be defined by landscaped areas with raised curbs. Pedestrian walkways should be provided around buildings to assure safe access. Internal walkways shall be surfaced with nonskid hard surfaces, meet accessibility requirements and provide at least five feet of unobstructed width. Walkways that cross driving lanes shall be constructed of contrasting materials or maintained painted markings. Walkways must be curbed and raised six inches above adjacent vehicular surface grade, except where the walkway crosses vehicular driving lanes or to meet accessibility standards.

The project provides pedestrian access from Arrow Point Drive through the parking lot and an additional pedestrian access from the parking lot, both connecting to the internal sidewalk that fronts the buildings. A dedicated drop-off / pick-up lane allows students to exit directly onto the internal sidewalk, avoiding interaction between students and vehicles in the parking lot. Walkways and decks provide pedestrian connectivity between buildings.

The project conditions provide appropriate curbs, walkway dimensions and surfacing. As determined by the City Engineer, the streets and pedestrian ways that serve the site are well-defined, safe and efficient. (Conditions 3, 4, 13 - 15)

ii. Bicycle facilities

The development must provide one bicycle space for every five vehicle parking spaces, with a minimum of four spaces provided for each parking lot.

A bicycle rack is proposed on the southeast side of the parking lot. Based on the number of vehicular parking spaces, six bicycle spaces are required. The project is conditioned to provide six bicycle spaces at a minimum. (Condition 9)

f. BIMC 18.15.040 Outdoor Lighting

All outdoor lighting must result in no light trespass. Outdoor lighting must be shielded and aimed downward, with no escaping direct light permitted to contribute to light pollution by shining upward into the sky or onto adjacent properties. Spotlighting on landscaping and foliage is limited to 150 watts incandescent (2,220 lumens output).

Outdoor lighting is proposed on buildings and along walkways. As proposed, the lighting meets regulations. The project is conditioned to demonstrate compliance with these regulations at time of building permit application. (Condition 16)

g. BIMC Chapter 18.18 Design Guidelines

The project is subject to the General and Commercial and Mixed Use Guidelines.

The Design Review Board reviewed the proposal and unanimously recommended approval.

i. Site Design. Create small parking clusters connected by vegetated landscaping and pedestrian walkways. Parking lots should be located behind or to the side of buildings. Pedestrian walkways should offer connections to adjoining properties. Exterior lighting should not exceed 14 feet in height and should incorporate shields. Trash containers should be shielded from view.

The redevelopment provides a 25-foot width vegetated buffer from Arrow Point Drive, and the parking lot lies between the buffer and the buildings, which are set back at least 80 feet from the right-of-way. Parking facilities are located in a manner that provides appropriate separation between vehicular traffic and the campus. The parking lot is comprised of grouped spaces which are separated by landscape areas.

Pedestrian walkways provide internal connection between the buildings and between the parking lot and the buildings. The development provides numerous outdoor spaces, including playgrounds, play fields and trails; while most are oriented behind the buildings to serve the student population, one courtyard features prominently in front of the buildings and is the terminus of the pedestrian walkway connection to Arrow Point Drive.

The proposed outdoor lighting appears to meet design guidelines, and the project is conditioned to demonstrate compliance with regulations at time of building permit application. Trash containers are located in the southeast corner of the parking lot and the proposed screening appears to meet design guidelines; the project is conditioned to demonstrate compliance with this guideline at time of building permit application. (Conditions 9, 17)

ii. Building Design. Buildings should utilize elements such as massing, materials, windows, canopies, and pitched or terraced roof forms to create a visually distinct base and cap. Building materials and patterns should be varied to produce variations in texture. Building elevations shall be vertically and horizontally modulated to avoid massive scale. Facades facing public ways shall incorporate setbacks or articulation, and shall include features such as columns or recessed entries. Blank walls shall not be visible to public spaces. Building designs should respond to nearby buildings by using shared elements, materials or massing. Principal entrances should be visually prominent and incorporate elements such as setbacks, recesses, and porches. Rooftop mechanical equipment should be concealed by and integrated within the roof form.

The architect's goal is to create a campus that exemplifies environmentally aware building practices and design. Buildings are oriented to capture natural light and provide views of the outdoors. Building materials include natural wood siding, corrugated metal, cement board, recycled wood trim and decking and reclaimed timber. All buildings are single story, and no blank walls are proposed. Covered walkways, porches and canopies afford protection from the elements. The visitors' entrance to the campus is located within the office / commons building; the walkway from the parking lot leads to this entrance, and the entrance is prominently marked with signage. No rooftop mechanical equipment is proposed.

2. BIMC 2.16 Decision Criteria

This staff report shall be considered the written findings of fact and conclusions of law for Site Plan and Design Review and Conditional Use Permit. As conditioned, the development meets the decision criteria for approval:

a. BIMC 2.16.040.E Site Plan and Design Review – Decision Criteria

i. The site plan and design is in conformance with applicable code provisions and development standards of the applicable zoning district.

A portion of the existing school building encroaches into the side setback and is legally non-conforming to required setbacks. The project meets required lot size and lot coverage and building height requirements. Landscape buffer widths are averaged as provided in BIMC 18.15.010, and where necessary, the project is conditioned to specify vegetation protection. The project provides adequate parking facilities, including overflow parking for events. The redevelopment is conditioned to meet applicable design guidelines, and is conditioned to meet lighting regulations. (Conditions 1, 5 – 8, 9 – 12, 16, 17)

ii. The locations of the buildings and structures, open spaces, landscaping, pedestrian, bicycle and vehicular circulation systems are adequate, safe, efficient and in conformance with the Non-motorized Transportation Plan.

The project is conditioned to provide a shoulder facility along Arrow Point Drive as required in the Non-motorized Transportation Plan. The City Engineer finds that as conditioned, the project provides adequate circulation systems and is consistent with the Non-motorized Transportation Plan. (Condition 3)

iii. The Kitsap County Health District has determined that the site plan and design meets the following decision criteria: The proposal conforms to current standards regarding domestic water supply and sewage disposal.

The Kitsap Public Health District approved the proposal.

iv. The City Engineer has determined that the site plan and design meets the following decision criteria: The site plan and design conforms to regulations concerning drainage in BIMC 15.20 and 15.21; The site plan and design will not cause an undue burden on the drainage basin or water quality and will not unreasonably interfere with the use and enjoyment of properties downstream; The streets and pedestrian ways as proposed align with and are otherwise coordinated with streets serving adjacent properties; The streets and pedestrian ways as proposed are adequate to accommodate anticipated traffic; The site plan and design conforms to the "City of Bainbridge Island Engineering Design and Development Standards Manual".

The City Engineer finds that, as conditioned, the project conforms to surface and stormwater requirements, will not cause undue burden on the drainage basin, and will not unreasonably interfere with the use and enjoyment of properties downstream. The stormwater management plan is prepared by a licensed professional engineer in accordance with BIMC 15.20. On-site stormwater is managed through dispersion, infiltration and detention. The applicant's model

demonstrates that surface and stormwater that flows off-site mimics pre-developed, forested conditions. The stormwater management system must be monitored and maintained as required in BIMC 15.20 / 15.21.

The traffic impact analysis provides adequate information to demonstrate that the impact of development passes the concurrency test (BIMC 15.32.020), and the City Engineer issued a Certificate of Concurrency. The streets and pedestrian ways are coordinated with streets serving adjacent properties and are adequate to accommodate anticipated traffic. As conditioned, the project conforms to the City Design and Construction Standards and Specifications manual. As conditioned, the City Engineer recommends project approval. (Condition 3)

v. The site plan and design is consistent with applicable design guidelines.

The Design Review Board recommends approval of the project as proposed.

vi. No harmful or unhealthful conditions are likely to result from the proposed plan.

Adequate provision is made for the public health, safety and welfare, and public use and interest. The project is conditioned to ensure adequate access, including emergency services, water, septic, and stormwater facilities. (Conditions 3 - 8)

vii. The site plan and design is in conformance with the comprehensive plan and other applicable adopted community plans.

The project provides for expansion of a not-for-profit educational facility which includes an arts education program and fosters appreciation of the natural world.

viii. Any property subject to site plan and design review that contains a critical area or buffer conforms to all requirements of that chapter.

The site is unencumbered by critical areas or their buffers.

ix. Any property subject to site plan and design review that is within shoreline jurisdiction conforms to all requirements of that chapter.

The property is not within shoreline jurisdiction.

x. The site plan and design has been prepared consistent with the purpose of the site design review process and open space goals.

The purpose of Site Plan and Design Review to establish a comprehensive site plan and design review process that ensures compliance with the adopted plans, policies, and ordinances of the City. This application for Site Plan and Design Review permit is reviewed consistent with the adopted review process to ensure compliance with current plans, policies and regulations.

b. BIMC 2.16.050.D Conditional Use Permit – Decision Criteria

i. The conditional use is harmonious and compatible in design, character and appearance with the intended character and quality of development in the vicinity of the subject property and with the physical characteristics of the subject property.

The school is located on a 4.83 acre property that is across the street from a public park. The proposed buildings are single-story, and designed to complement the natural setting.

ii. The conditional use will be served by adequate public facilities including roads, water, fire protection, sewage disposal facilities and storm drainage facilities.

The City Engineer finds that the streets and pedestrian ways are coordinated with streets serving adjacent properties and are adequate to accommodate anticipated traffic. The project is adequately served by roads and storm drainage facilities. As conditioned, the City Engineer recommends project approval. (Condition 3)

The Health District finds that the project is adequately served by water and sewage disposal facilities. The Fire Marshal finds that as conditioned, the development provides adequate fire protection facilities. (Condition 4)

iii. The conditional use will not be materially detrimental to uses or property in the immediate vicinity of the subject property.

The school has been located on the property for over 25 years, and as conditioned, expansion of the existing use will not be materially detrimental to uses or property in the immediate vicinity of the subject property.

iv. The conditional use is in accord with the Comprehensive Plan and other applicable adopted community plans, including the Non-motorized Transportation Plan.

The redevelopment is in accord with economic and cultural goals contained in the Comprehensive Plan. The project is conditioned to meet Non-motorized Transportation Plan requirements. (Condition 3)

v. The conditional use complies with all other provisions of the Bainbridge Island Municipal Code.

The project complies with all applicable provisions of the municipal code as discussed in Section I.D.2.g. of this report.

vi. All necessary measures have been taken to eliminate or reduce to the greatest extent possible the impacts that the proposed use may have on the immediate vicinity of the subject property.

The project is conditioned to take special care to protect retained trees and vegetation within buffers. The original proposal was modified to provide improved vehicular circulation and to keep car traffic from backing up on Arrow Point Drive, to provide a student pick-up / drop-off area segregated from vehicular traffic, and to provide overflow parking. (Conditions 5 - 8)

vii. Noise levels shall be in compliance with BIMC 16.16.020 and 16.16.040.A.

All development within the City is subject to noise limitations in BIMC 16.16.

viii. The City Engineer has determined that the conditional use meets the following decision criteria: The conditional use conforms to regulations concerning drainage in Chapters 15.20 and 15.21 BIMC; The conditional use will not cause an undue

burden on the drainage basin or water quality and will not unreasonably interfere with the use and enjoyment of properties downstream; The streets and pedestrian ways as proposed align with and are otherwise coordinated with streets serving adjacent properties; The streets and pedestrian ways as proposed are adequate to accommodate anticipated traffic; If the conditional use will rely on public water or sewer services, there is capacity in the water or sewer system (as applicable) to serve the conditional use, and the applicable service(s) can be made available at the site; The conditional use conforms to the "City of Bainbridge Island Engineering Design and Development Standards Manual," unless the City Engineer has approved a variation to the road standards in that document based on his or her determination that the variation meets the purposes of BIMC Title 18.

The City Engineer finds that, as conditioned, the project conforms to surface and stormwater requirements, will not cause undue burden on the drainage basin, and will not unreasonably interfere with the use and enjoyment of properties downstream. The stormwater management plan follows BIMC 15.20 and utilizes on-site dispersion, infiltration and detention. Post-development off-site flows mimic pre-developed conditions. Ongoing monitoring and maintenance is required once the stormwater facilities are place (BIMC 15.20 / 15.21).

The traffic impact analysis demonstrates that the project passes the concurrency test, and the City Engineer issued a Certificate of Concurrency. The streets and pedestrian ways are coordinated with streets serving adjacent properties and are adequate to accommodate anticipated traffic. Water and septic systems provide adequately for the site and as conditioned, the project conforms to the City Design and Construction Standards and Specifications manual. As conditioned, the City Engineer recommends project approval. (Condition 3)

ix. A conditional use may be approved with conditions. If no reasonable conditions can be imposed that ensure the application meets the decision criteria of this chapter, then the application shall be denied.

The project is conditioned to ensure compliance with all applicable regulations and address environmental impact. (Conditions 1 – 18)

x. Additional Decision Criteria for Institutions in Residential Zones:

a) All sites must front on roads classified as residential suburban, collector or arterial on the Bainbridge Island functional road classification map.

The property fronts Arrow Point Road, classified as a collector road, and therefore the site meets this requirement.

b) If the traffic study shows an impact on the level of service, those impacts have been mitigated as required by the City Engineer.

The City Engineer finds the traffic study shows an acceptable level of service impact with the conditional use and issued a certificate of concurrency.

c) If the application is located outside the Winslow Study Area, the project shall provide vegetated perimeter buffers in compliance with BIMC 18.15.010.

The site is outside the Winslow Study Area. As provided in BIMC 18.15.010, buffer averaging is utilized to reduce the buffers to the minimum allowed width of 15 feet in three areas in the northwest and southwest portions of the lot, and the buffer width is increased from 25 feet to 35 feet along the northeast, southeast and east property boundaries.

d) The proposal meets the Commercial / Mixed Use Design Guidelines.

Compliance with the Commercial / Mixed Use guidelines, is discussed in Section D.1.f of this report above. The Design Review Board unanimously recommends approval of the project. (Conditions 9 - 17)

e) The scale of proposed construction including bulk and height and architectural design features is compatible with the immediately surrounding area.

The buildings are single story and incorporate various materials designed to be compatible with the natural setting.

f) If the facility will have attendees and employees numbering fewer than 50 or an assembly seating area of less than 50, the Director may waive any or all of the additional decision criteria requirements for institutions in residential zones.

This criterion is not applicable, as there are more than 50 students and staff.

g) Lot coverage does not exceed 50 percent of the allowable lot coverage in the zone in which the institution is located.

Maximum lot coverage in the R-1 zoning district is 15 percent; institutions including religious facilities may not exceed 50 percent of the allowable lot coverage (i.e. 7.5 percent). Lot coverage is approximately 13,660 square feet, or 7.1 percent of the lot area, and therefore meets this requirement.

II. Conclusions

As conditioned, the proposed development is consistent with the Comprehensive Plan and zoning regulations. The project meets the decision criteria of BIMC 2.16.040 Site Plan and Design Review and BIMC 2.16.050 Conditional Use Permit.

Appropriate notice of application was made and comments were considered. The application is properly before the Planning Commission for recommendation to the Hearing Examiner.

A land use permit automatically expires and is void if the applicant fails to file for a building permit or other necessary development permit within three years of the effective date of the permit unless the applicant has received an extension for the permit in accordance with BIMC 2.16.020.2.

Footnotes:

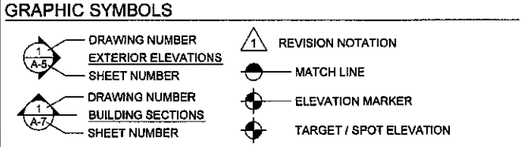
[1] World Health Organization. *Children and Noise.* http://www.who.int/ceh/capacity/noise.pdf n.d. Accessed December 20, 2016.

[2] Metropolitan Airports Commission. Aviation Noise & Satellite Programs Office. *Tips for Insulating Your Home against Aircraft Noise.* *https://www.macnoise.com/sites/macnoise.com/files/pdf/tips.pdf* n.d. Accessed December 20, 2016.

ABBREVIATIONS LIST

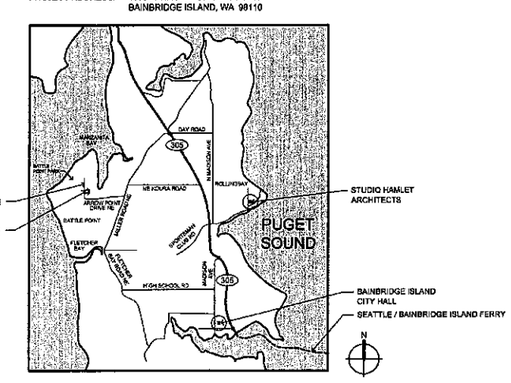
&	And
B/	Built-in
∠	Angle
@	At
x	By
℄	Centerline
C	Channel
Ø	Diameter or Round
//	Parallel
⊥	Perpendicular
#	Pnts / Property Line
#	Pound(s) or Number
□	Square Feet
□	Square Inch
AB	Anchor Bolt
ACH	Air Changes per Hour
ACOUS	Acoustical
AD	Area Drain
ADJ	Adjustable
AFF	Above Finished Floor
AGGR	Aggregate
AIR	Air Infiltration Barrier
ALT	Alternate
ALUM	Aluminum
APPROX	Approximate
ARCH	Architectural
B/	Built-in
BC	Book Case
BD	Board
BIB	Blown In Blanket
BLK	Block
BLKG	Blocking
BM	Beam
BO	Bottom Of
BOT	Bottom
BP	Building Paper
BTW	Between
BU	Built Up
BUR	Built Up Roof
CAB	Cabinet
CB	Catch Basin
CI	Cast Iron
CJ	Control Joint
CLG	Ceiling
CLKG	Caulking
CLR	Clear
CMU	Concrete Masonry Unit
CNTR	Counter
CO	Clear Opening
COL	Column
CONC	Concrete
CONN	Connection
CONT	Continuous
CONTR	Contractor
CPT	Carpet
CT	Ceramic Tile
CTR	Center
CTSK	Countersunk
CVG	Close Vertical Grain
CW	Cold Water
D	Dryer or Depth
DBL	Double
DEPT	Department
DET	Detail
DF	Douglas Fir
DIA	Diameter
DIM	Dimension
DISP	Disposal
DN	Down
DP	Deep
DR	Door
DS	Down Spout
DW	Dish Washer
DWG	Drawing
DWR	Drawer
(E)	Existing
E	East
EA	Each
EL	Elevation
ELEC	Electrical
ELEV	Elevation
ENCL	Enclosure
EPB	Electrical Panel Board
EQ	Equal
EQUIP	Equipment
EW	Each Way
EXP	Expansion
EXT	Exterior
FAU	Forced Air Unit
FD	Floor Drain or Footing Drain
FDN	Foundation
FF	Finished Floor
FFE	Finished Floor Elevation
FH	Flat Head
FIN	Finish
FIXT	Fixture
FL	Floor
FLR	Floor
FLTG	Flashing
FLUOR	Fluorescent
FO	Face Of
FOB	Face of Beam
FOC	Face of Concrete
FOF	Face of Finish
FOMC	Face Of Metal Center
FOM	Face of Masonry
FOS	Face of Stud
FP	Fire Place
FRZR	Freezer
FT	Foot or Feet
FT	Foot or Feet
FTG	Footing
GA	Gauge
GALV	Galvanized
GB	Grab Bar or Glass Block
GC	General Contractor
GD	Garbage Disposal
GFI	Ground Fault Interrupter
GL	Glass
GLB	Glue Laminated Beam
GSM	Galvanized Sheet Metal
GWB	Gypsum Wall Board
H	Height or High
HB	Hose Bib
HC	Hollow Core
HD	Hold
HD	Hold Down (Structural)
HDR	Header
HDWD	Hardwood
HDWR	Hardware
HEM	Hemlock
HORIZ	Horizontal
HR	Handrail or Hour
HRV	Heat Recovery Ventilation
HT	Height
HVAC	Heating, Ventilation & Air Conditioning
HW	Hot Water
HWHTR	Hot Water Heater
IBC	International Building Code
ID	Inside Diameter
IEC	International Electrical Code
IECC	International Energy Conservation Code
IMC	International Mechanical Code
IN	Inch
INSUL	Insulation
INT	Interior
IPC	International Plumbing Code
IRC	International Residential Code
JST	Joist
JT	Joint
L	Lower
LAM	Laminate
LAV	Lavatory
LB	Pound
LC	Light Control
LDRY	Laundry
LIN	Linoleum
LP	Liquid Propane
LT	Light
LVP	Low Voltage Panel
M	Mirror
MACH	Machine
MAX	Maximum
MB	Machine Bolt
MBH	Mop & Broom Holder
MC	Medicine Cabinet
MECH	Mechanical
MFR	Manufacturer
MIN	Minimum
MISC	Miscellaneous
MO	Masonry Opening
MS	Mirror & Shelf
MTD	Mounted
MTL	Metal
MUL	Mullion
MW	Microwave
(N)	New
N	North
NA	Not Applicable
NG	Natural Gas
NIC	Not In Contract
NO	Number
NOM	Nominal
NTS	Not to Scale
OC	On Center
OD	Outside Diameter
OFIC	Owner Furnished - Installed by Contractor
OH	Over Head / Overhang
OPG	Opening
OPP	Opposite
OV	Over
P	Pole
P&S	Pole & Shelf
PERF	Perforated
PH	Telephone
PL	Plate
PLAM	Plastic Laminate
PLYWD	Plywood
PNL	Panel
PNT	Paint (ed)
P&O	Profit & Overhead
PR	Pair
PSF	Per Square Foot
PSI	Per Square Inch
PT	Pressure Treated or Point
QT	Quarry Tile / Quart
(R)	Existing, to be removed
R	Riser or Radius
RA	Return Air
RMF	Rubber Flooring
RD	Roof Drain
REBAR	Reinforcing Steel Bar
REC	Recessed
REF	Reference
REFRIG	Refrigerator
REINF	Reinforced
REQ	Required
RES	Resilient
REV	Revision / Revised
RFS	Room Finish Schedule
RH	Robe Hook
RM	Room
RO	Rough Opening
ROW	Right Of Way
RSF	Resilient Sheet Flooring
RT or RTF	Resilient Tile Flooring
RWD	Redwood
S	Scale or Sink
SAD	See Architectural Drawings
SC	Solid Core
SD	Smoke Detector, Storm Drain or Soap Dispenser
SED	See Electrical Drawings
SF	Square Footage
SG	Shower Glass
SH	Shelf
SHT	Sheet
SHWR	Shower
SIM	Similar
SL	Slope
SLD	See Landscape Drawings
SM	Sheet Metal
SMD	See Mechanical Drawings
SOG	Slab On Grade
SPD	See Plumbing Drawings
SPEC	Specification
SPKR	Speaker
SQ	Square
SR	Shower Rod
SS	Stainless Steel
SSD	See Structural Drawings
STD	Standard
STL	Steel
STRUCT	Structural
SW	Shear Wall
SYM	Symmetrical
T	Tread or Toilet
TAG	Tongue / Groove
TB	Towel Bar
TBD	To Be Determined
TC	Trash Compactor
TEL	Telephone
TEMP	Tempered
TER	Terrazzo
THK	Thick
TL	Tight Line
TN	Toilet Paper
TO	Top of
TOC	Top of Concrete
TOS	Top Of Slab
TOW	Top of Wall
TP	Toilet Paper Holder
TW	To Weather
TYP	Typical
UNF	Unfinished
UNO	Unless Noted Otherwise
USGBC	United States Green Building Council
V	Vertical
VERT	Vertical
VIF	Verify in Field
VOL	Volume
VTO	Vent to Outside
W	Washer
W/	With
W/D	Washer & Dryer
W/O	Without
WB	Weather Barrier
WC	Water Closet
WD	Wood
WDW	Window
WH	Water Heater
WP	Waterproof
WP-B	Waterproofing-Bentonite
WP-BU	Waterproofing-Built-Up
WP-FAC	Waterproofing-Fluid Applied Cold
WP-FAH	Waterproofing-Fluid Applied Hot
WP-SH	Waterproofing-Sheet Membrane
WR	Water Resistant
WRB	Weather-Resistive Barrier
WS	Wood Screw
WSEC	Washington State Energy Code
WT	Weight
WWM	Welded Wire Mesh

GRAPHIC SYMBOLS



PROJECT LOCATION

PROJECT ADDRESS: 10994 ARROW POINT DRIVE NE
BAINBRIDGE ISLAND, WA 98110



PROJECT INFORMATION

PROJECT ADDRESS: 10994 ARROW POINT DRIVE
BAINBRIDGE ISLAND, WA 98110

LEGAL DESCRIPTION:
17282E
*****EXCEPT TAXABLE PORTION TO 172502-1-097-2109 (PER BLA AF# 201507160181 WHICH ADDED ACREAGE WHICH HAD NOT BEEN NON-PROFIT STATUS)*****
RESULTANT PARCEL B OF BOUNDARY LINE ADJUSTMENT RECORDED UNDER AUDITOR'S FILE NO. 201512030174, RECORDS OF KITSAP COUNTY, WASHINGTON; BEING A PORTION OF GOVERNMENT LOT 2, SECTION 17, TOWNSHIP 25 NORTH, RANGE 2 EAST, W.M., KITSAP COUNTY, WASHINGTON.

VISION STATEMENT:
This proposal represents the opportunity for Montessori Country School to unify two separate campuses into an integrated campus that serves all members of the school community. Montessori Country School is committed to the Montessori method of education in supporting children to achieve self-discipline, self-mastery, and a life-long love of learning. We endeavor to honor individuality, nurture enthusiasm, and encourage independence in a carefully prepared environment where children learn with love, compassion, and respect. This project will allow us to create a seamless transition from preschool to elementary, strengthen our inter-staff collaboration, support inter-disciplinary education, and meet the needs of a growing population of young children on Bainbridge Island.

In addition, our plan includes a commons area that will be made available to the greater island community. We will create a campus that exemplifies environmentally aware building practices and design, encouraging others to create learning spaces that respect the importance of beauty and respect for the earth.

PROJECT DESCRIPTION:
This project will carefully and respectfully develop 4.38 acres across the street from Battle Point Park on Arrow Point Dr. on the site where the preschool has existed for almost 40 years, we will add four additional classrooms (plus an additional fifth future classroom), a fine arts building, and a community gathering space. The buildings are sited to create a logical flow from spaces for the youngest child to the oldest. The new site will provide ample parking and expand the driveway and drop-off area to avoid congestion. In addition, the playground and woods will be respectfully enhanced to provide environments for our place-based curriculum. Our landscaping plan will include drought-tolerant native plants selected to teach as well as enhance the environment.

TAX PARCEL #: 172502-1-087-2000

SITE INFORMATION:

Existing Campus:
Total 83 students, 10 staff
19 parking spaces
1 vehicular entrance from and 1 exit to Arrow Point Drive (one-way circulation)
Existing Group A private well water system and On-Site Septic system

Expanded Campus: Lot area = 4.38 acres
Total 146 students, 18 staff
25 parking spaces plus 1 ADA space [minimum 26 spaces required]
1 vehicular entrance from and 1 exit to Arrow Point Drive (one-way circulation)
Expanded Group A private well water system and new On-Site Septic system

Lot Coverage: 7.5% maximum (50% allowed lot coverage per BIMC 2.16.110.E7)
Total Lot Area = 4.38 acres (190,792 sf)
Maximum Lot Coverage Allowed: 7.5% = 14,307 sf
Proposed Building Area = 13,660 sf = 7.1% lot coverage
Building 1 (2,868 SF)
Building 2 (3,118 SF)
Building 3 (1,750 SF)
Building 4 (3,808 SF)
Building 5 (1,280 SF)
Water Building (195 SF)

EXISTING & PROPOSED BUILDING INFORMATION:

Existing school (building 1): 3,550 sf. floor area. Two stories
Pre-school classrooms. 38 students, 4 teachers, 1 admin.

New Primary Duplex (building 2): 2,112 sf. floor area. One story.
Two primary school classrooms. 46 students, 4 teachers.

New Admin & Multipurpose (building 3): 1,704 sf. floor area. One story.
Reception, Office and Commons Room. No students, 2 admin.

New Elementary Duplex (building 4): 2,744 sf. floor area. One story.
Two elementary school classrooms and entry vestibule. 46 students, 4 teachers.

New Art Classroom (building 5): 640 sf. floor area. One story.
Art classroom.

Future Classroom (building 6): 960 sf. floor area. One story.
Future elementary school classroom. 16 students, 2 teachers.

Water Building: 143 sf. floor area.

FENCING PLAN:
Kindergarten outdoor play area will have a perimeter wood fence.
Preschool outdoor play areas will be defined by a combination of wire fence, wood fence and landscape hedge.
See Landscape Plan for locations.

NOISE ORDINANCE COMPLIANCE
- Between the hours of 10pm and 7am, no noise will be generated from the school site
- Between the hours of 7am and 10pm, school activity noise levels shall not exceed 55 dBA in general, or 60 dBA for a total of 15 minutes in any one-hour period, 65 dBA for a total of 5 minutes in any one-hour period, 70 dBA for a total of 1.5 minutes in any one-hour period.

PROJECT DIRECTORY

OWNER
MEGHAN SKOTHEIM, HEAD OF SCHOOL
MONTESSORI COUNTRY SCHOOL
10994 ARROW POINT DRIVE
BAINBRIDGE ISLAND, WA 98110
TEL.206.842.4966

CONTRACTOR
MARTY SIEVERTSON
PHC CONSTRUCTION
710 JOHN NELSON LANE NE
BAINBRIDGE ISLAND, WA 98110
TEL.206.780.4060
CELL.360.710.8427
CONTRACTOR #?

LANDSCAPE ARCHITECT
KIA MICAUD
CATHERINE MICAUD LANDSCAPE ARCHITECTURE
7361 ISLAND CENTER ROAD NE
BAINBRIDGE ISLAND, WA 98110
TEL.250.842.4668

STRUCTURAL ENGINEER
KELLY CONRAD
ADI STRUCTURES
7424 NE ABIES DRIVE
BAINBRIDGE ISLAND, WA 98110
TEL.206.842.9084

GEOTECHNICAL ENGINEER
ANDY HOLMSON
ASPECT CONSULTING
350 MADISON AVENUE NORTH
BAINBRIDGE ISLAND, WA 98110
TEL.206.780.7731

ARCHITECT
RUSS HAMLET
STUDIO HAMLET ARCHITECTS
10583 MANITOU PARK BLVD NE
BAINBRIDGE ISLAND, WA 98110
TEL.206.842.7355

SURVEYOR
JIM GOLDSWORTHY
ADAM GOLDSWORTHY OAK
19062 HWY 305 NORTH
POULSBO, WA 98370
TEL.360-779-4299
TEL.206-842-9598

CIVIL ENGINEER
ADAM WHEELER
BROWNE WHEELER ENGINEERING
241 ERICKSEN AVE NE
BAINBRIDGE ISLAND, WA 98110
TEL.206.842.0606

SEPTIC DESIGNER
DAVID MARTIN
MILLER BAY WATER COMPANY
PO BOX 138
POULSBO, WA 98392
TEL.360.598.3505

INDEX OF DRAWING SHEETS

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A-1.2	PARTIAL SITE PLAN
A-1.3	SITE PLAN WITH ROOF PLANS
A-1.4	SITE SECTIONS
A-1.5	SITE LIGHTING PLAN
A-1.6	SITE PERSPECTIVE - SOUTHWEST
A-1.7	SITE PERSPECTIVE - SOUTHEAST
A-1.8	PERSPECTIVE VIEWS
A-1.9	WATER BUILDING & TOTER ENCLOSURES & FENCE DESIGN
A-1.10	MATERIALS & COLORS
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A-2.2	PRIMARY CLASSROOM BUILDING - ROOF PLAN & BUILDING SECTION
A-2.3	PRIMARY CLASSROOM BUILDING - ELEVATIONS
A-3.1	OFFICE & COMMONS BUILDING - FLOOR PLAN
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E-1.3	EXISTING SCHOOL EAST & NORTH ELEVATIONS

City of Bainbridge Island
REVISED
JUL 11 2016
Planning and Community Development

DATE:	REVISION
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL
7-8-16	UPDATE INFO

STUDIO HAMLET ARCHITECTS
Russell Hamlet AIA
10583 Manitou Park Blvd NE
Bainbridge Island, Washington
206.842.7355
www.studiohamlet.com

MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

COVER SHEET
PROJECT INFORMATION

DATE: JULY 8, 2016
SCALE: AS NOTED
DRAWN: RMB
JOB #: #1210
SHEET:
A-0.1

City of Bainbridge Island

JUL 11 2016
Planning and
Community Development

City of Bainbridge Island

JUL 11 2016
Planning and
Community Development

#B115 INFORMATION RECEIVED FOR PERMIT UNDER REVIEW

If the permit has been issued, please use form #B107-Revise Approved Set of Plans.

Section 1 –Contact Information

Applicant Name: Studio Hamlet Architects

Permit Number: PLN 17677 SPR Assessor Tax Parcel #: 172502-1-087-2000

Contact Name: Brandon Hogg / Russ Hamlet Phone Number: 206.842.7355

Section 2 – General Information

Please provide a complete, detailed description of the submitted information:

Update sheet A-0.1 to clarify lot coverage calculation and proposed buildings floor area square footage, per Kelly Tayara request.

Are two sets of the revised plans or addendum indicating the changes included? Yes: ☑ No: ☐

Are the revisions clearly and accurately identified on the plans or addendum? Yes: ☑ No: ☐

Does the plan contain an engineer's or architect's lateral or vertical analysis Yes: ☐ No: ☑

- ✓ If yes, provide plans and calculations approved by the architect and/or engineer. Please provide one set with an original wet stamp and signature of the architect, engineer, or both.

Does the proposed revision modify the footprint or location of the structure? Yes: ☐ No: ☑

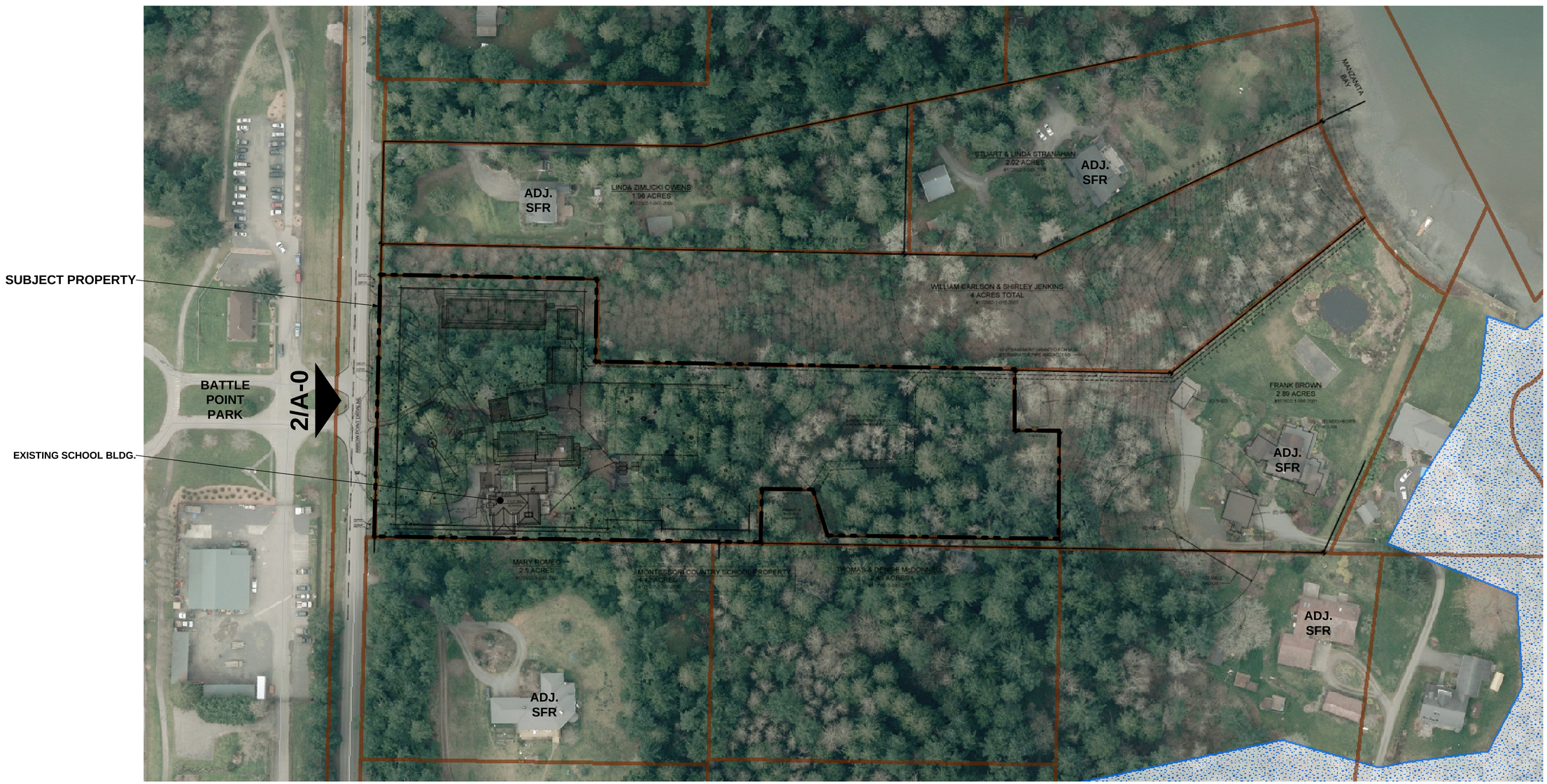
- ✓ If yes, a revised site plan, drawn to scale, must be included with this request which has been approved by the Health District.

Does the proposed revision change the total number of bedrooms? Yes: ☐ No: ☑

- ✓ If yes, provide Kitsap Public Health approval for increased bedroom load on septic system.

Applicant's Signature: _____ Date: 07-11-16

2 EXISTING STREETSCAPE VIEW LOOKING EAST FROM ARROW POINT DRIVE
NotToScale



1 CONTEXT SITE MAP
NotToScale

DATE:	REVISIONS

STUDIO HAMLET ARCHITECTS
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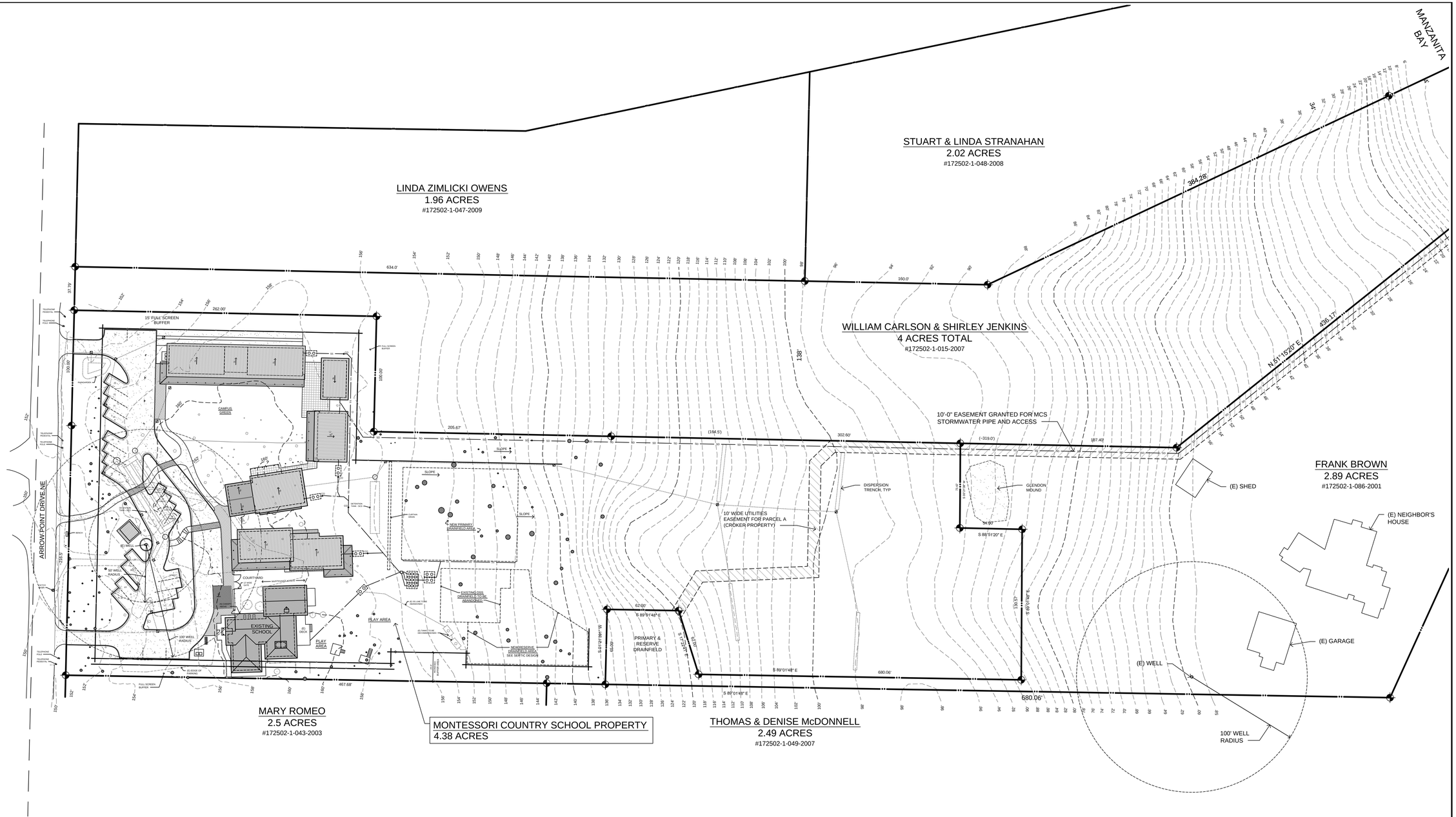
10583 Manitou Park NE
Bainbridge Island, WA 98110
206.842.7355
www.studiohamlet.com

MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

CONTEXT SITE MAP & STREETSCAPE VIEW

DATE:	JUNE 15, 2016
SCALE:	N.T.S.
DRAWN:	BH
JOB #:	#1210
SHEET:	A-0.2



1 OVERALL SITE PLAN

TAX ID NUMBER: 172502-1-087-2000

0 10' 20' 40' 80'

N

LEGEND

	(E) CONTOURS
	(N) CONTOURS
E	ELECTRICAL SUPPLY
W	WATER SUPPLY
SS	SANITARY SEWER
SD	STORM DRAIN
TL	TIGHT LINE
FD	PERF FOUNDATION DRAIN
F	FILTER FENCE
CL	CLEARING LIMITS

(E) EXISTING
(N) NEW
TREE

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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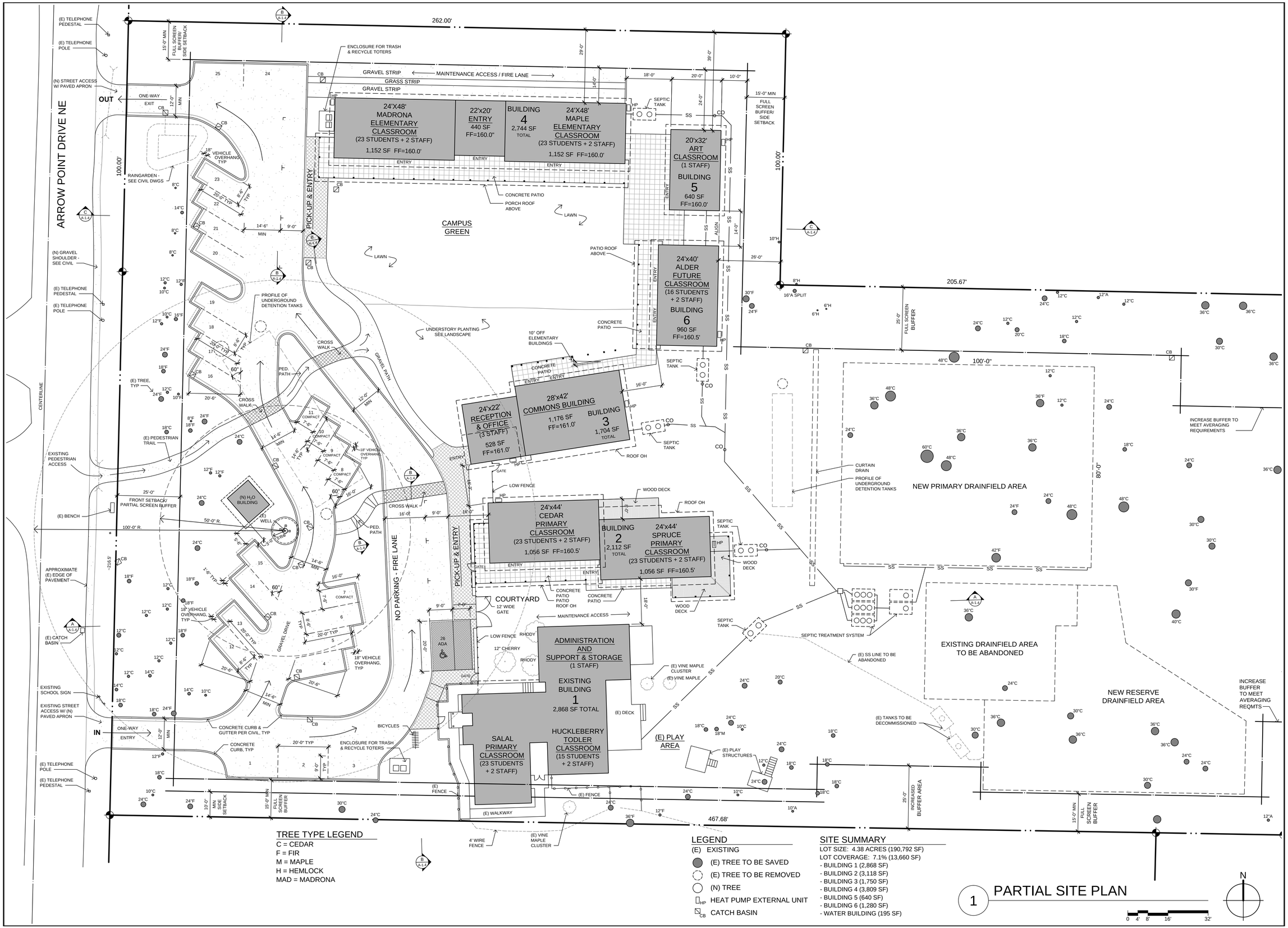
MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

OVERALL SITE PLAN

DATE:	JUNE 15, 2016
SCALE:	1"=40'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-1.1



DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
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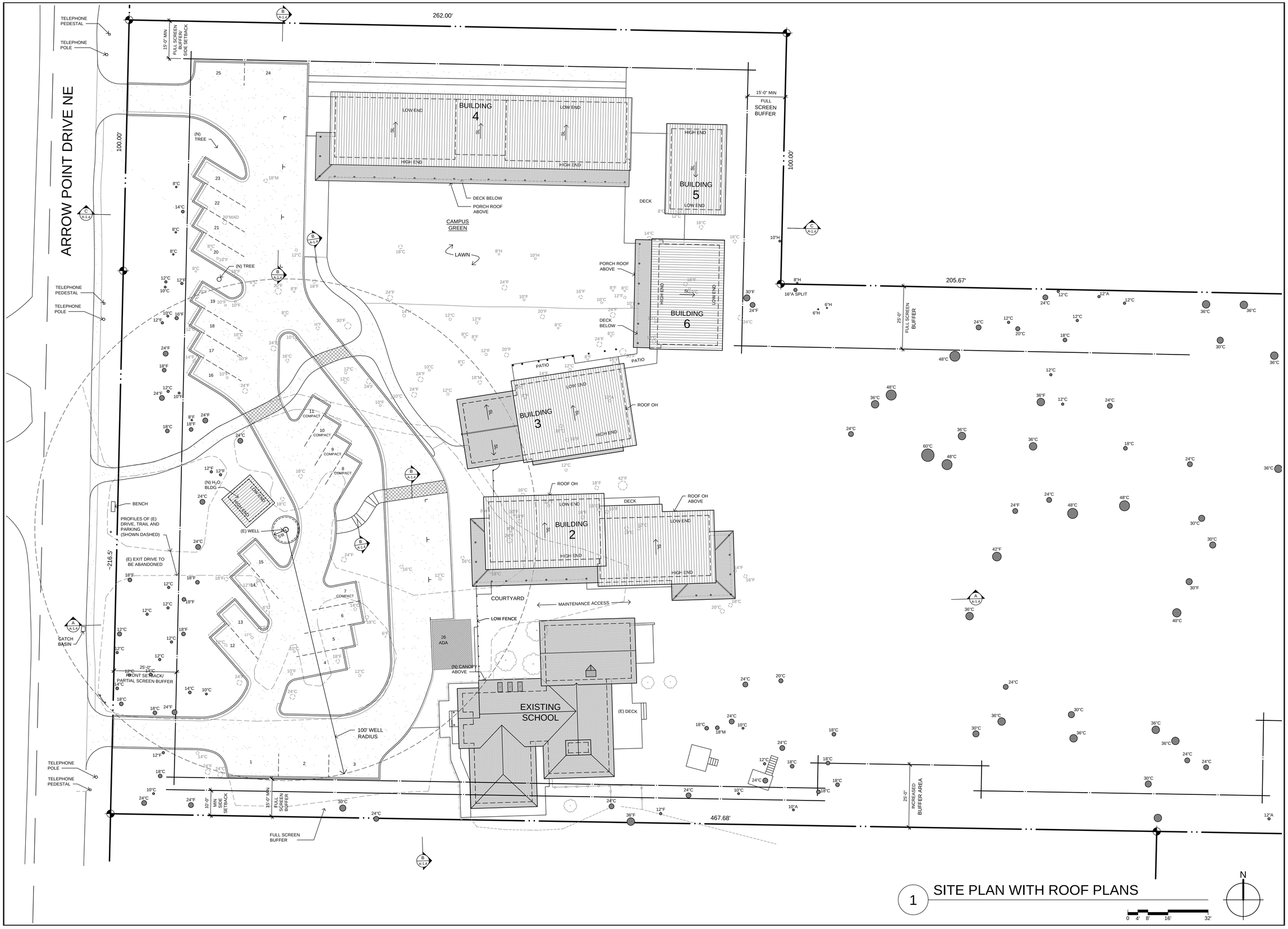
PARTIAL SITE PLAN

DATE: JUNE 15, 2016
SCALE: 1/16"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET: A-1.2



1 SITE PLAN WITH ROOF PLANS

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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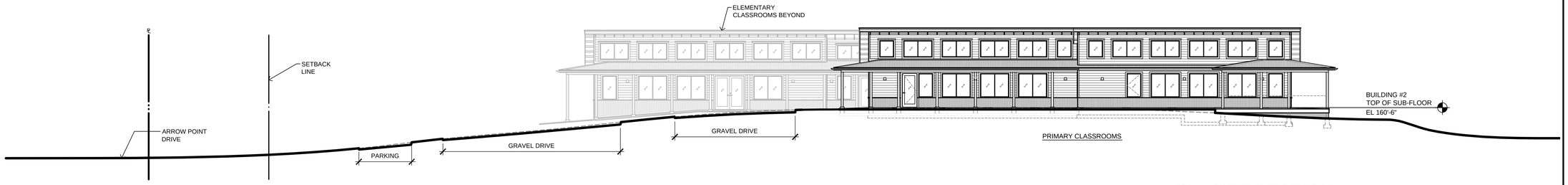
Bainbridge Island, WA

SITE PLAN WITH ROOF PLANS

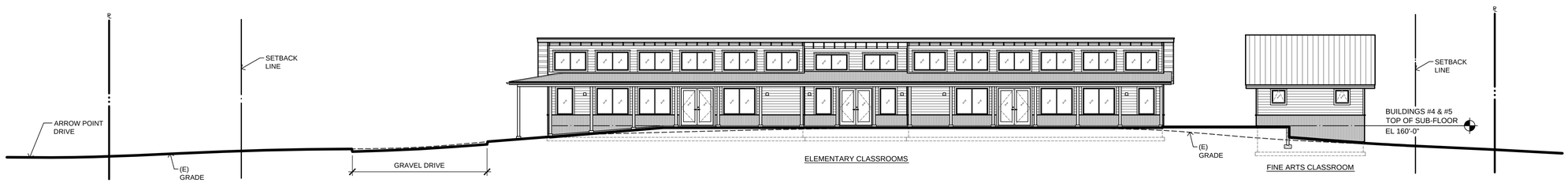
DATE:	JUNE 15, 2016
SCALE:	1/16"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-1.3



A SITE SECTION

0 2' 4' 8' 16'

B SITE SECTION



C SITE SECTION

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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10994 Arrow Point Drive NE
Bainbridge Island, WA

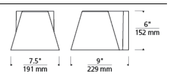
SITE SECTIONS

DATE:	JUNE 15, 2016
SCALE:	3/32"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-1.4

W A L L C O L L E C T I O N

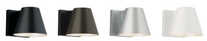
Bowman 6 Wall

DESCRIPTION
The soft silhouette of classic table lamp shades is referenced and transformed into a sleek LED wall sconce fixture suitable for both indoor and outdoor applications. The Bowman$€™s die-cast metal body houses a powerful LED light source for plentiful illumination on even the darkest of nights. Includes 35 watt, 2270 net lumen, 3000K LED module. Dimmable with low-voltage electronic dimmer. Mounts down only. Suitable for outdoor use.



INSTALLATION
This product can mount to either a 4" square electrical box with round plaster ring or an octagonal electrical box (not included).

WEIGHT
3.4lb / 1.54kg ±



black antique bronze silver white

ORDERING INFORMATION

700WSBOW6 FINISH

Z ANTIQUE BRONZE
B BLACK
I SILVER
W WHITE

LAMP

-LED830 LED 80 CRI 3000K 120V
-LED830-277 LED 80 CRI 3000K 277V

TECH LIGHTING®
7400 Linder Avenue T 847.410.4400
Skokie, Illinois 60077 F 847.410.4500

Tech Lighting, L.L.C.

700WSBOW6 ____ ____

FIXTURE TYPE: _____
JOB NAME: _____
NOTES: _____

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Tech Lighting reserves the right to change specifications for product improvements without notification.

TYPICAL BUILDING LIGHT FIXTURE

Dome 3000K LED Path Light BKT

15810BKT30R (Textured Black)

Project Name: _____
Location: _____
Type: _____
Qty: _____
Comments: _____

Ordering Information

Product ID	15810BKT30R
Finish	Textured Black
Available Finishes	AZT, AZT, BBR, BBR, BKT, BKT

Dimensions

Weight	3.00 LBS

Photometrics

Color Rendering Index	80

Electrical

Voltage	12V
Operating Voltage Range	9-15V

Qualifications

Safety Rated	Wet
Warranty	www.kichler.com/warranty

Primary Lamping

Light Source	LED
Lamp Included	Integrated
Number of Lights/LEDs	8
Lamp Type	LED

Dimensions

Height	22.00"
Length	8.25"
Width	8.25"

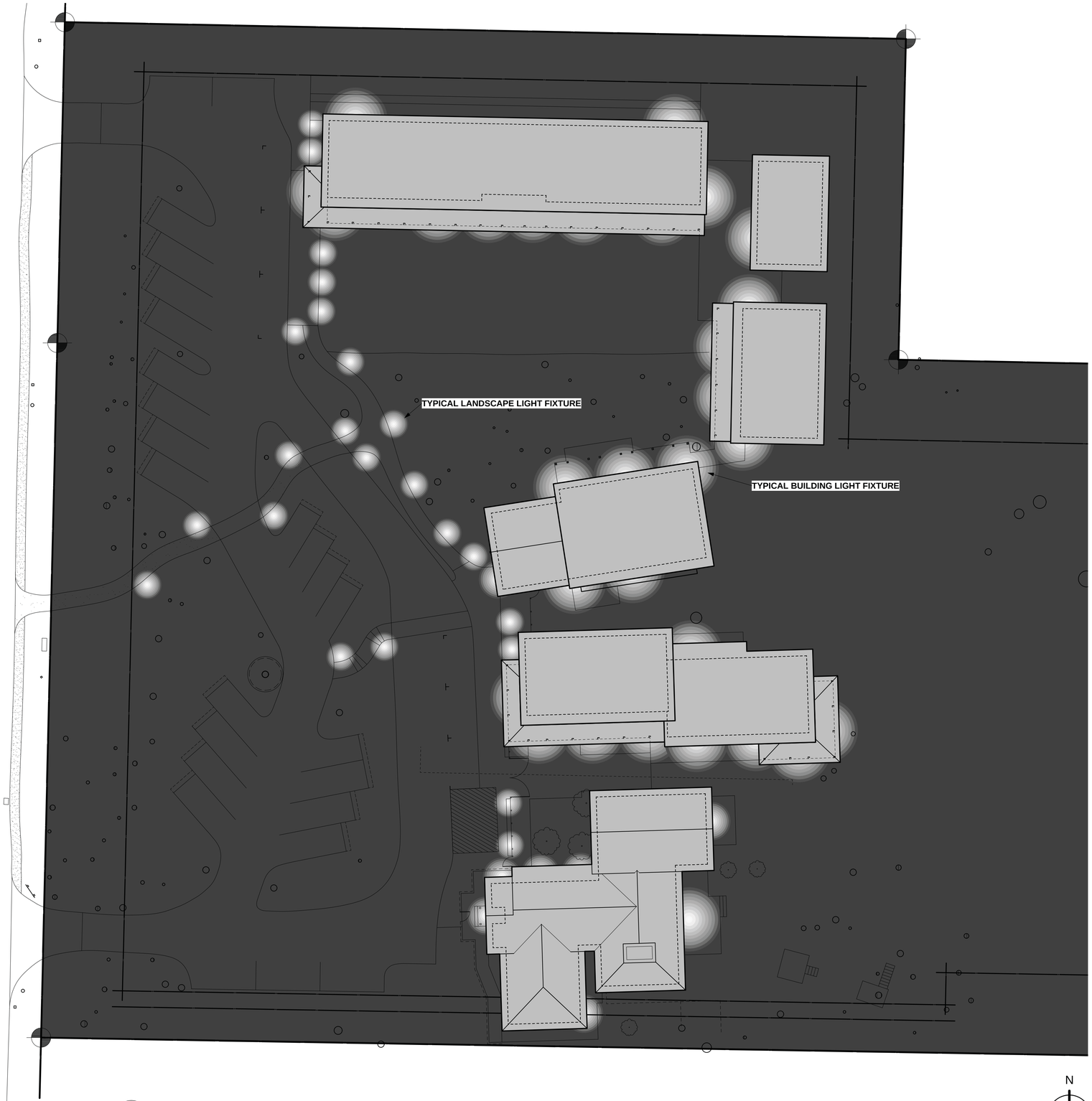
Kichler
7711 East Pleasant Valley Road
Cleveland, Ohio 44131-8010
Toll free: 866.558.5706 or kichler.com

Notes:
1) Information provided is subject to change without notice. All values are design or typical values when measured under laboratory conditions.
2) Incandescent Equivalent: The incandescent equivalent as presented is an approximate number and is for reference only.

KICHLER

TYPICAL LANDSCAPE LIGHT FIXTURE

ARROW POINT DRIVE NE



1 SITE LIGHTING PLAN
1/16" = 1'-0"

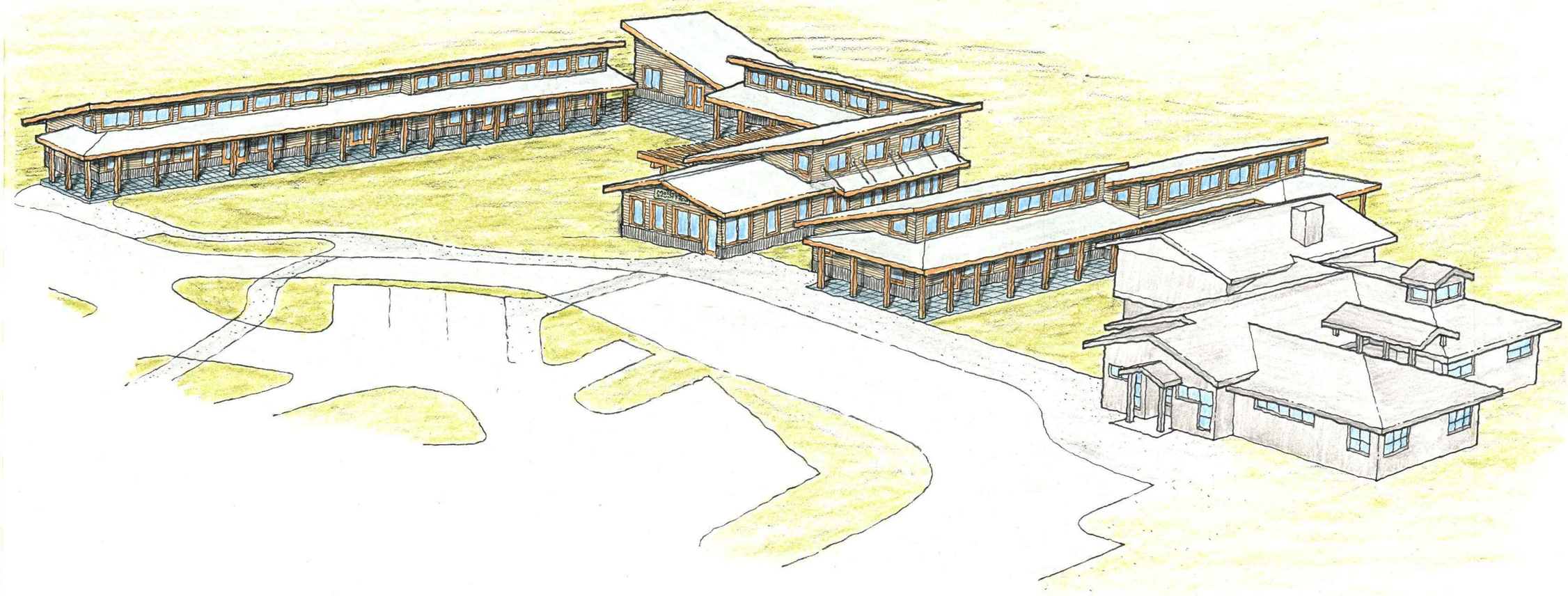
DATE:	REVISIONS

STUDIO HAMLET ARCHITECTS
Russell Hamlet AIA
10583 Manitou Park NE
Bainbridge Island, WA 98110
206.842.7355
www.studiohamlet.com

MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

SITE LIGHTING PLAN

DATE:	JUNE 15, 2016
SCALE:	1/16" = 1'-0"
DRAWN:	BH
JOB #:	#1210
SHEET:	A-1.5



VIEW FROM SOUTHWEST

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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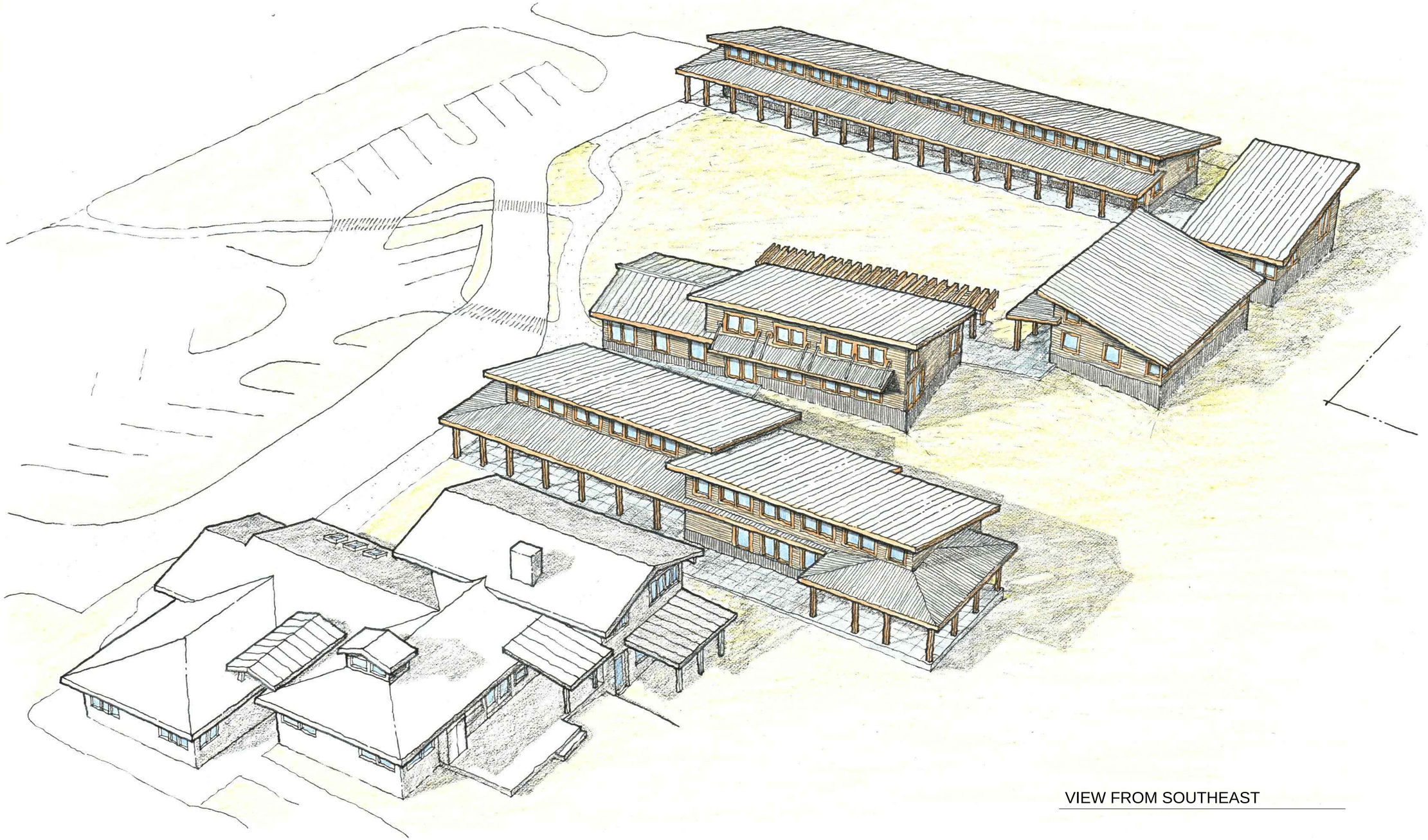
MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

SITE PERSPECTIVE AS VIEWED FROM SOUTHWEST

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-1.6



VIEW FROM SOUTHEAST

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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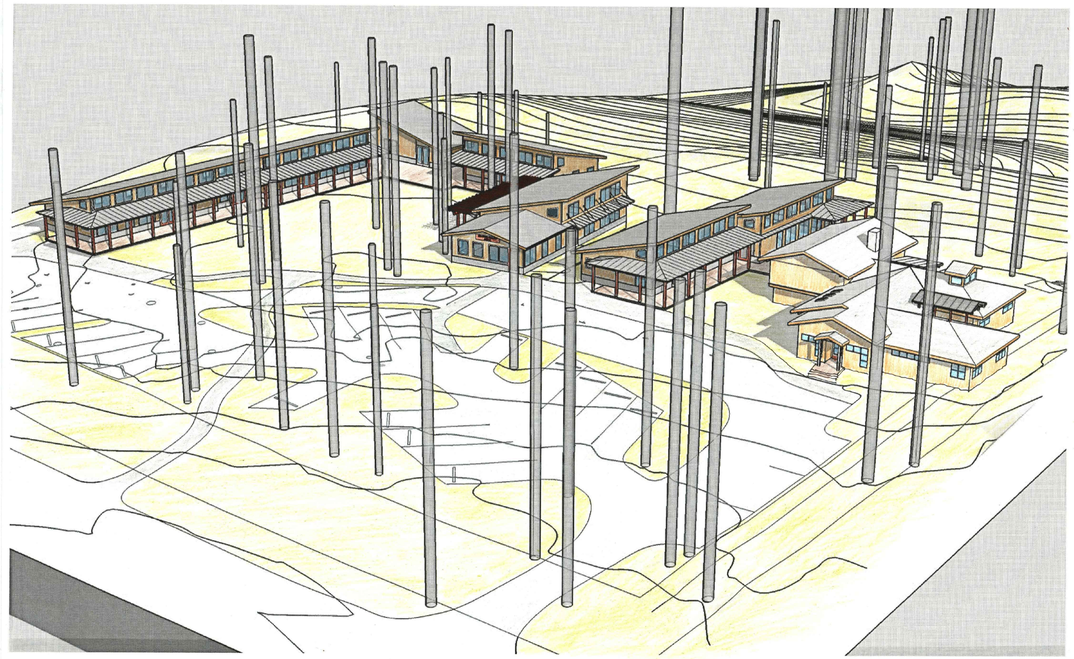
MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

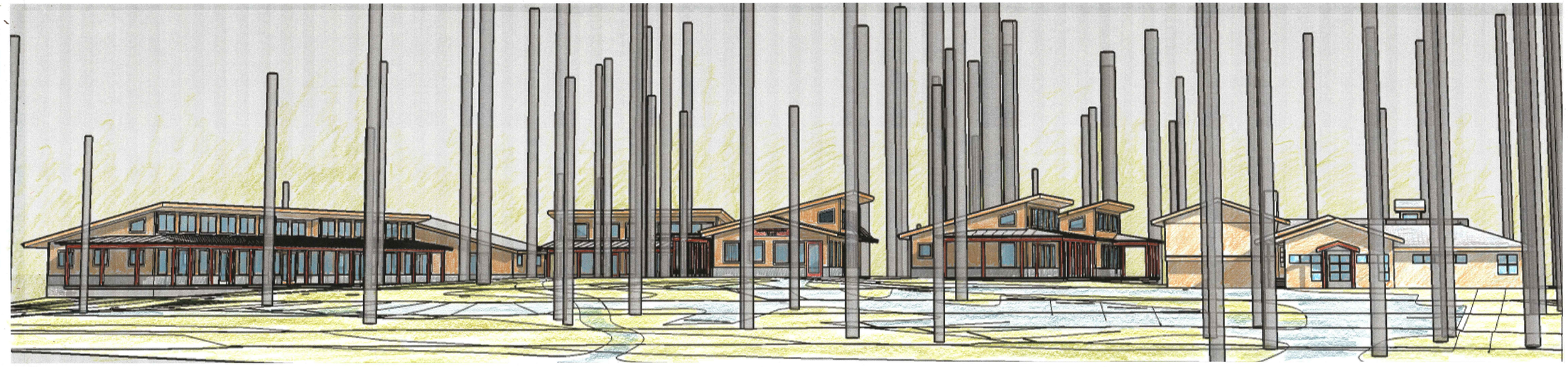
SITE PERSPECTIVE AS VIEWED FROM SOUTHEAST

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-1.7

VIEW FROM ENTRY DRIVE



BIRD'S EYE VIEW FROM SOUTHWEST ENTRY



VIEW FROM ARROW POINT DRIVE

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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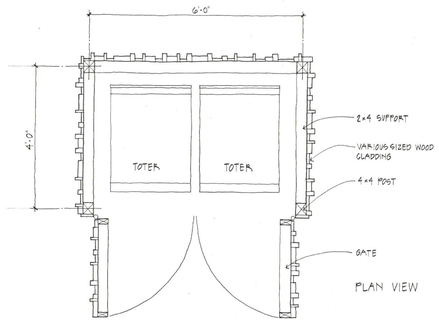
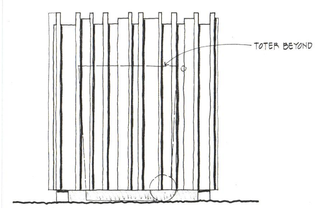
10994 Arrow Point Drive NE
Bainbridge Island, WA

PERSPECTIVE VIEWS

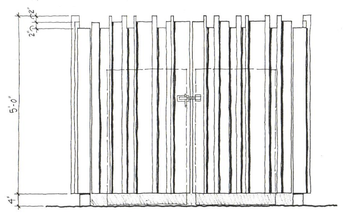
DATE:	JUNE 15, 2016
SCALE:	½"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-1.8



PLAN VIEW

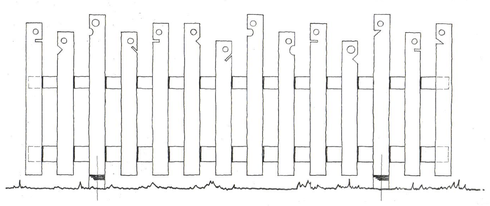


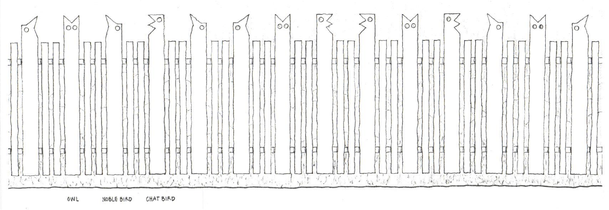
SIDE VIEW



FRONT VIEW

TOTER ENCLOSURES





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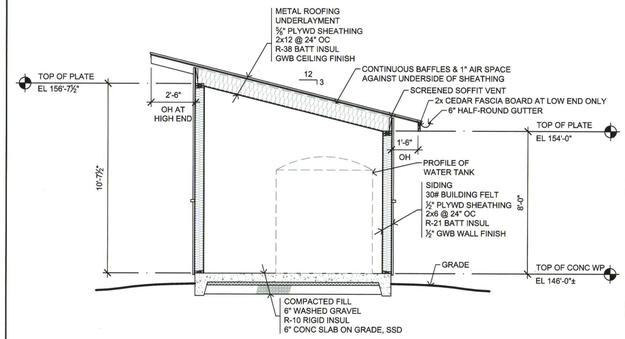
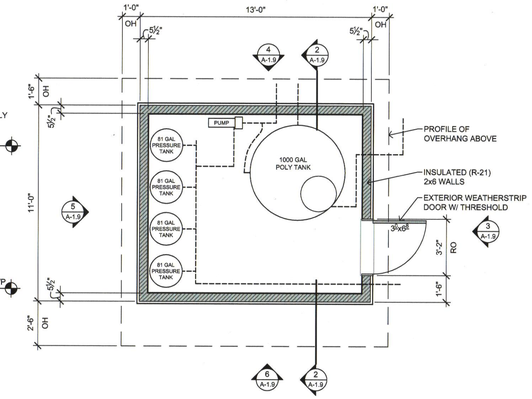


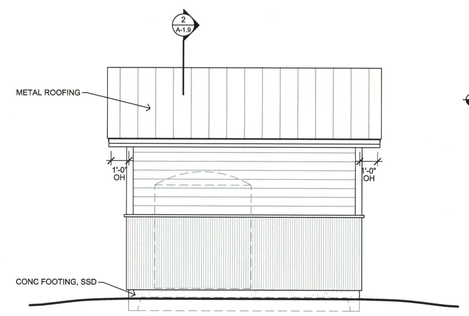
2 WATER BUILDING SECTION



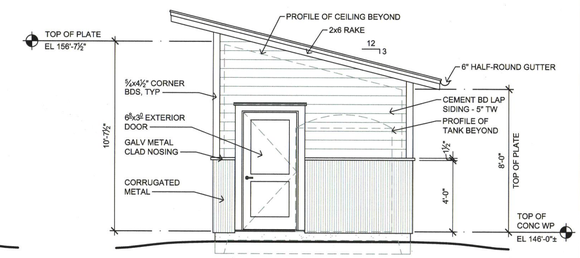
1 WATER BUILDING PLAN

N

0 1' 2' 4' 8'



4 NORTHEAST ELEVATION



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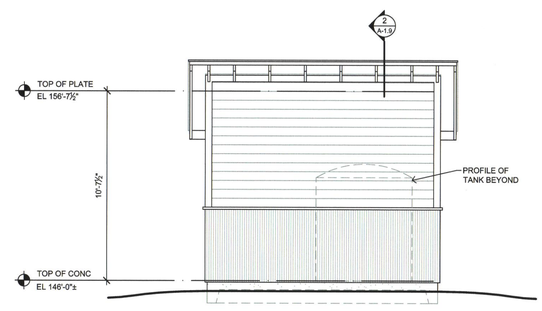
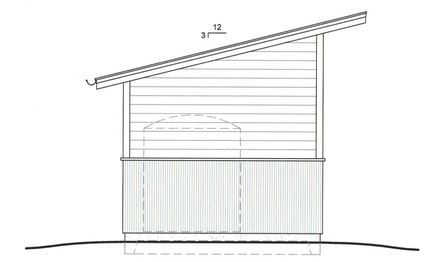


6 SOUTHWEST ELEVATION



5 NORTHWEST ELEVATION

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
8-15-16	CUP/SPR SUBMITTAL

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www.studiohamlet.com

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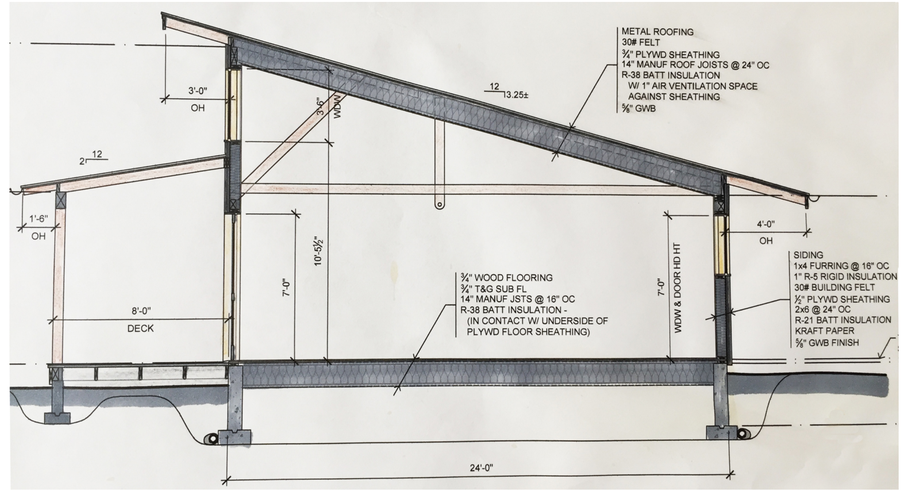
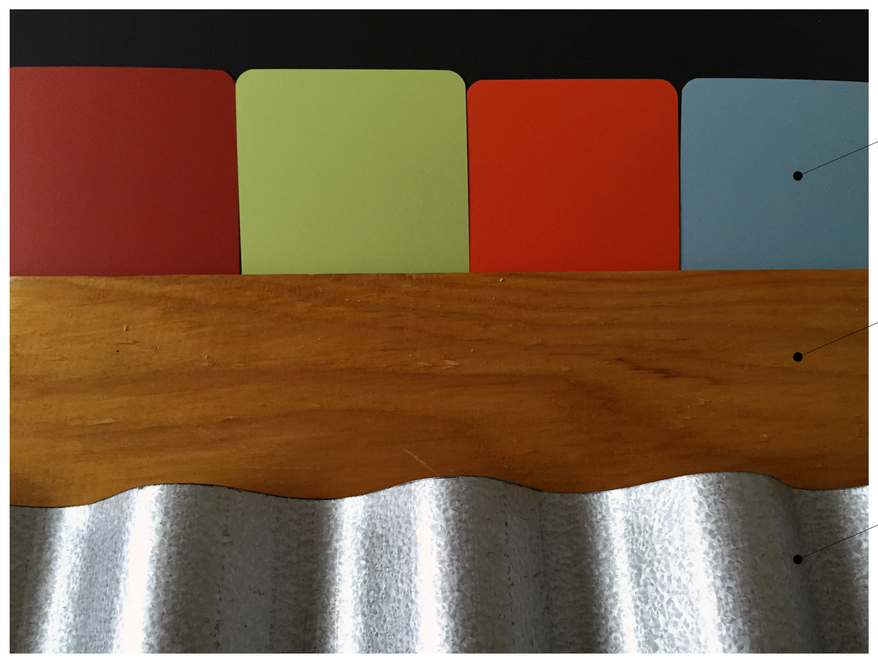
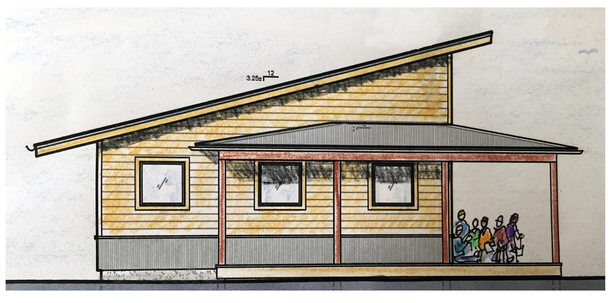
10994 Arrow Point Drive NE
Bainbridge Island, WA

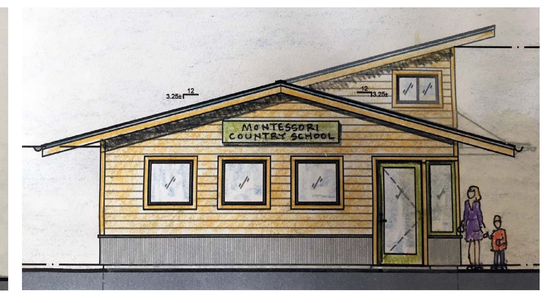
WATER BUILDING & TOTER ENCLOSURES & FENCE DESIGN

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-1.9









DATE:	REVISIONS

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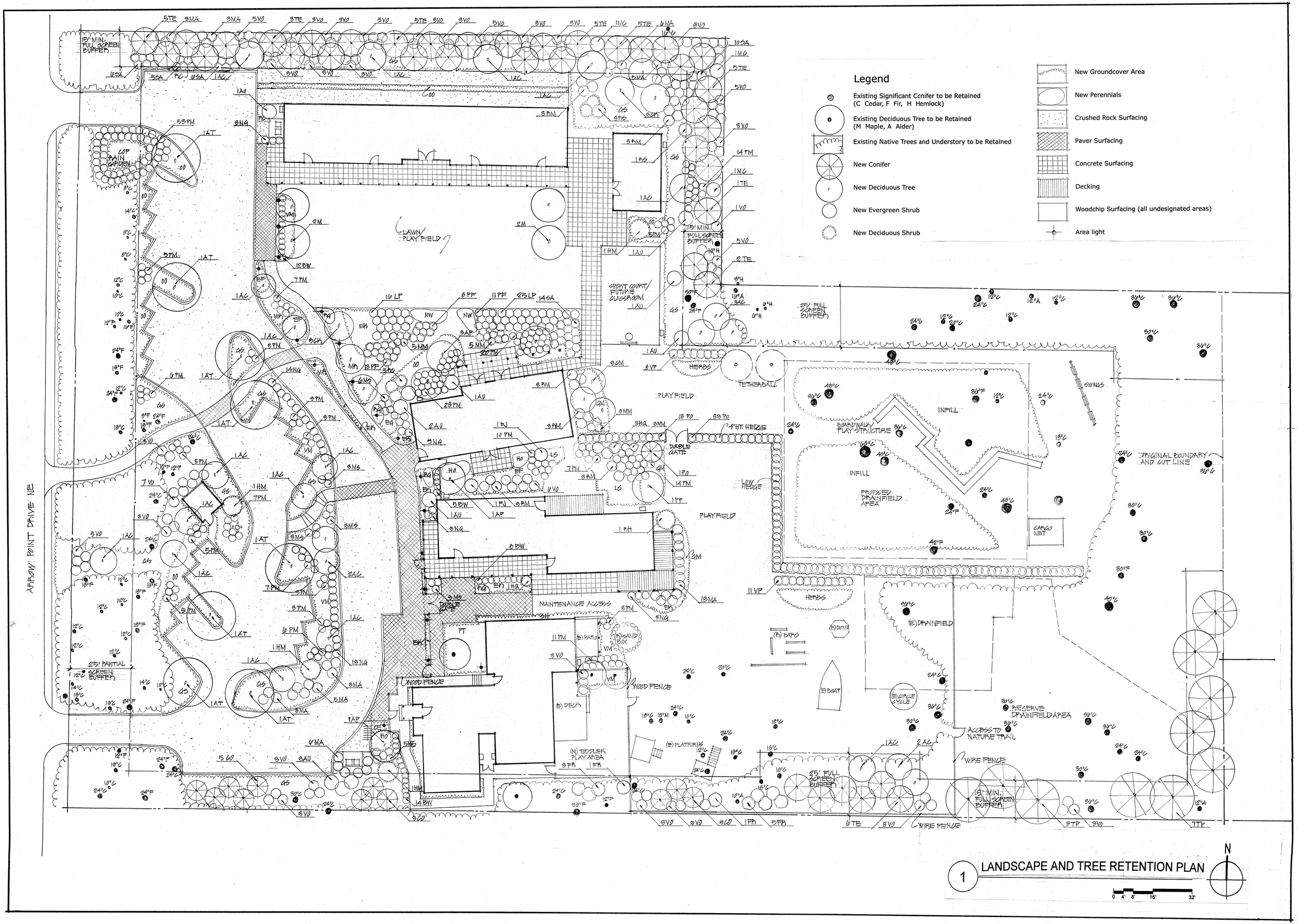
MATERIALS & COLORS

DATE:	JUNE 15, 2016
SCALE:	N.T.S.
DRAWN:	BH
JOB #:	#1210
SHEET:	

A-1.10



1 LANDSCAPE AND TREE RETENTION PLAN

DATE:	REVISIONS
10/6/15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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LANDSCAPE AND TREE RETENTION PLAN

DATE: JUNE 15, 2016
SCALE: 1/16"=1'-0"
DRAWN: CM
JOB#: #1210
SHEET: L-1

Notes

Tree Protection Strategies and Limits of Construction:
Install temporary fencing at edges of clearing to demark the limits of construction. Install temporary fencing around the drip line of all trees and tree stands to remain in the construction zone. Temporary fencing is intended to keep equipment away from the root zones of trees that are to remain.

Vegetation Clearing Strategies:
Remove the stumps of all trees that are removed. Leave all native vegetation undisturbed beyond limits of clearing. Salvage all sword ferns in construction zones. Heal ferns into topsoil in a shaded area with access to water and water as required until they can be relocated into new planting areas. Most of the stockpiled ferns shall be relocated in the drainfield area after it is installed. Any clearing that is required below trees that are designated to remain shall be done by hand.

Topsoil Protection and Reuse Strategies and Native soil Amendment Strategies:
Stockpile native topsoil from all building sites and from below parking and driveway areas. This topsoil can then be amended by mixing in screened compost at a ratio of 1/3 compost to 2/3 stockpiled topsoil. This amended native soil shall be spread on all new planting areas at a depth of 6".

Planting Times and Mulching:
Whenever possible schedule the planting between the months of October and May, avoiding any periods of freezing weather. Landscape Architect shall approve the placement of all plants prior to planting. All planting beds shall be mulched with 2" of compost mulch after planting.

Irrigation:
Provide drip irrigation to all new planting areas. The feeder lines can be on the surface leading to the plants on the eastern edge of the property. All drip irrigation lines around the buildings, parking, and play areas shall be buried below the mulch. The irrigation shall be used the first two summers on a weekly basis and after that only during periods of prolonged drought.

Buffer Screening Requirements

Full Screen Buffer:
Perimeter for full screen equals 1875 lineal feet

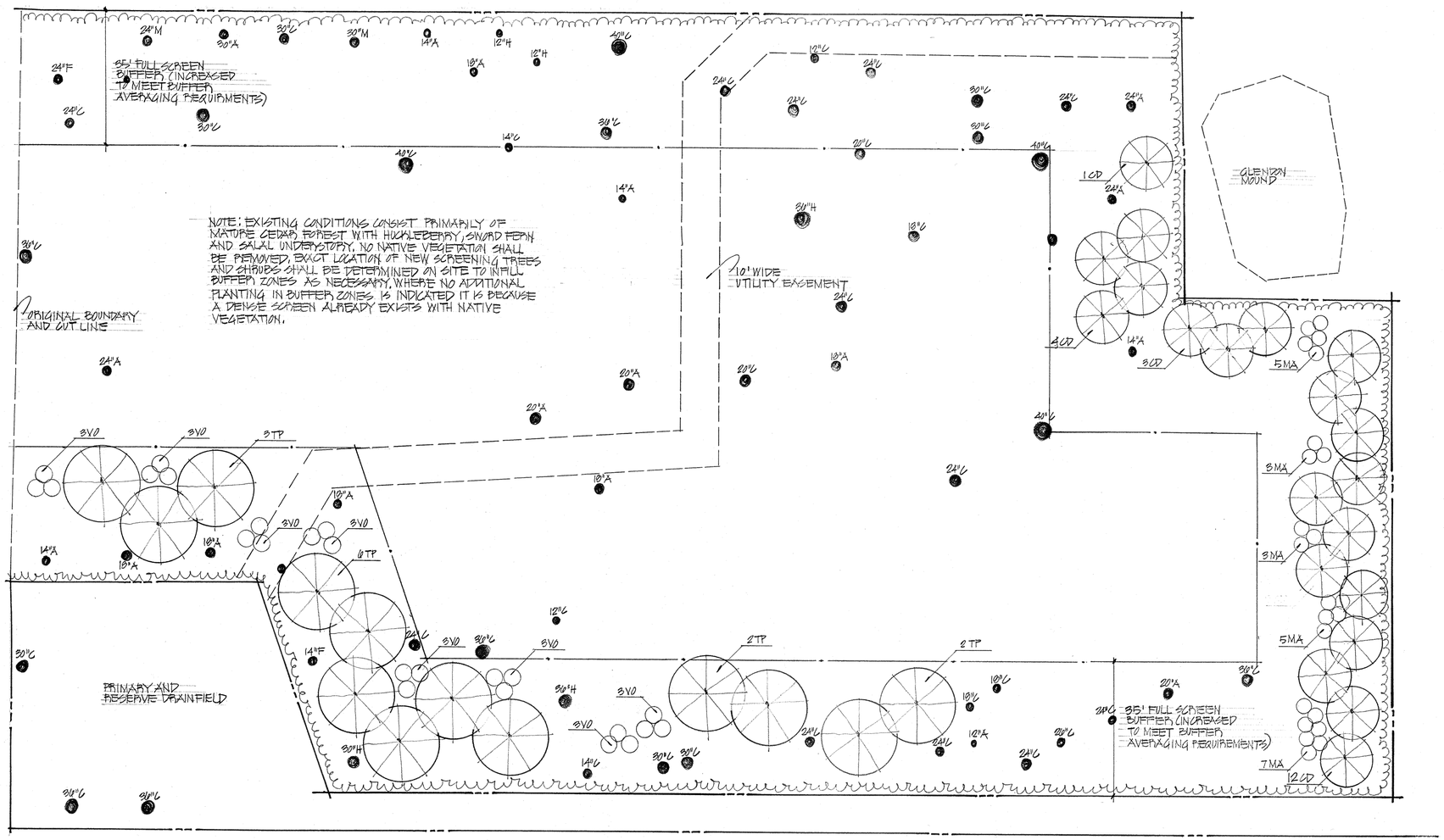
Tree requirement (1875 divided by 10)	**187**
Existing trees in full screen buffer zone:	82
New native evergreen trees provided:	93
New native deciduous trees provided:	12
Total full screen buffer native trees:	**187**
Shrub requirement (1875 divided by 4):	**469**
New native evergreen shrubs provided:	182
Existing native evergreen shrubs in buffer zone:	287 minimum
Total full screen buffer evergreen shrubs:	**469 minimum**

Partial Screen Buffer:
Perimeter for partial screen equals 316 lineal feet

Tree requirement (316 divided by 20)	**16**
Existingevergreen trees in partial screen buffer zone:	34
New native deciduous trees:	1
Total partial screen buffer native trees	**35**
Shrub requirement (316 divided by 5)	**63**
New native evergreen shrubs provided:	5
Existing native evergreen shrubs:	58 minimum
Total partial screen buffer evergreen shrubs:	**63 minimum**

Tree Retention Requirements

Total Site Acreage:	4.42 acres
Tree retention units required (4.42 times 40);	**176.8 units**
Units retained (not including existing trees in buffer zones):	
Existing trees in tree stands (438 units x 1.2):	525.6
Total tree units of retained trees:	**525.6**



1 LANDSCAPE AND TREE RETENTION PLAN

0 4' 8' 16' 32'

N

Plant Schedule:

Key	Quan.	Botanical Name/ Common Name	Size/ Condition/ Spacing	Native
Trees:				
AC	23	Acer circinatum/ Vine Maple	6'-8' ht., B&B multi-stem	native
AP	5	Acer palmatum 'Seiryu'/ Seiryu Japanese Maple	1,5" cal., B&B	
AT	8	Acer truncatum 'Norwegian Sunset'/ Norwegian Sunset Maple	2" cal., B&B	
CD	20	Calocedrus decurrens/ Incense Cedar	5'-6' ht., B&B	native
CK	6	Cornus kousa 'Chinensis'/ Chinese Dogwood	1.75" cal., B&B	
CM	3	Cornus mas/ Cornelian Cherry	1.75" cal., B&B	
CO	11	Chamaecyparis obtusa 'Gracillis'/ Slender Hinoki Cypress	5'-6' ht., B&B	
M	4	Malus 'Spartan' and 'Melrose'/ Late season Apples	2" cal., B&B	
PO	1	Picea omorika/ Serbian Spruce	5'-6' ht., B&B	
PP	1	Parrotia persica/ Persian Ironwood	1.75" cal., B&B	
TE	35	Thuja plicata 'Excelsa'/ Excelsa Cedar	5'-6' ht., B&B	near native
TP	23	Thuja plicata/ Western Red Cedar	5'-6' ht., B&B	native
Shrubs:				
AU	11	Arbutus unedo 'Compacta'/ Compact Strawberry Tree	5 gal. cont.	near native
BW	39	Buxus m. japonica 'Winter Gem'/ Winter Gem Boxwood	2 gal. cont.	
FJ	2	Fatsia japonica/ Japanese Aralia	5 gal. cont.	
FR	10	Fargesia rufa/ Clumping bamboo	2 gal. cont.	
HM	4	Hamemellis mollis/ Witch Hazel	3'-4' ht., B&B	
HQ	4	Hydrangea quercifolia/ Oakleaf Hydrangea	5 gal. cont.	
LP	41	Lonicera pileata/ Privet Honeysuckle	1 gal. cont.	
MA	59	Mahonia aquifolium/ Tall Oregon Grape	5 gal. cont.	native
MC	2	Myrica californica/ Pacific Wax Myrtle	5 gal. cont.	native
MM	16	Miscanthus sinensis 'Morning Light'/ Morning Light Maiden Grass	5 gal. cont.	
MS	23	Mahonia eurybracteata 'Soft Caress'/ Soft Caress Oregon Grape	1 gal. cont.	
NG	41	Nandina domestica 'Gulf Stream'/ Gulf Stream Heavenly Bamboo	5 gal. cont.	
PF	32	Potentilla fruticosa 'Gold Star'/ Gold Star Cinquefoil	1 gal.	near native
PM	197	Polystichum munitum/ Sword Fern	1 gal. cont.	native
PO	96	Prunus laurocerasum 'Otto Luyken'/ Otto Luyken Dwarf Laurel	24"-30", B&B	
RM	18	Rhododendron macrophyllum/ Coast Rhododendron	5 gal. cont.	native
RS	6	Ribes sanguineum/ Red Flowering Currant	5 gal. cont.	native
SA	41	Symphoricarpos albus/ Snowberry	2 gal. cont.	native
VC	19	Vaccinium c. 'Liberty' and 'Elliot'/ Late season Highbush Blueberries	5 gal. cont.	
VO	3	Vaccinium ovatum/ Evergreen Huckleberry	1 gal. cont.	native
RH	1	Relocated Hamamellis		
Groundcover/Perennials:				
CE	3	Carex osh. 'EverColor Everest'/ Evercolor Everest Sedge	1 gal. cont./ 18" on center	
COP	16	Carex opnupta/ Slough Sedge	1 gal. cont./ 24" on center	native
EF	40	Epimedium p. 'Frohnleiten'/ Frohnleiten Barrenwort	1 gal. cont./ 24" on center	
EG	8	Erica darleyensis 'Goldrush'/ Goldrush Heath	1 gal. cont./ 24" on center	
EK	75	Erica darleyensis 'Kramer's Rote'/ Kramer's Red Winter Heath	1 gal. cont./ 18" on center	
GM	33	Geranium macrorrhizum/ Cranesbill	1 gal. cont./ 18" on center	
GS	612	Gaultheria shallon/ Salal	4" pot/ 24" on center	native
HO	22	Helleborus orientalis/ Lenten Rose	1 gal. cont./ 18" on center	
LS	54	Liriope spicata/ Creeping Lilyturf	4" pot/ 18" on center	
MR	92	Mahonia repens/ Creeping Oregon Grape	1 gal. cont./ 24" on center	native
NW	15	Nepeta f. 'Walker's Low/ Walker's Low Catmint	1 gal. cont./ 30" on center	
OO	180	Oxalis oregona/ Redwood Sorrel	4" pot/ 18" on center	native
PT	36	Pachysandra terminalis/ Japanese Spurge	4" pot/ 18" on center	
RC	54	Rubus calycinoides/ Creeping Bramble	4" pot/ 24" on center	native
RG	15	Rudbeckia fulgida 'Goldsturm'/ Black-eyed Susan	1 gal. cont./ 24" on center	
SH	25	Sarcococca h. humilis/ Sweet Box	1 gal. cont./ 24" on center	
VM	108	Vinca minor 'Bowles'/ Bowles Periwinkle	4" pot/ 24" on center	
Herbs		Rosemary, Thyme, Oregano, Mint, Chives, Lavender		
Infill		Existing ferns to be transplanted back after drainfield installation.		
		Add: Blechnum spicant/ Deer Fern		native
		Tiarella trifoliate/Foamflower		native
Bulbs/ Perennials		Not shown-to be field located		
		Narcissus/ Daffodils		
		Hyacintholdes hispanica/ Spanish Bluebells		
		Aquillegia formosa/ Native Columbine		native

DATE:	REVISIONS
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12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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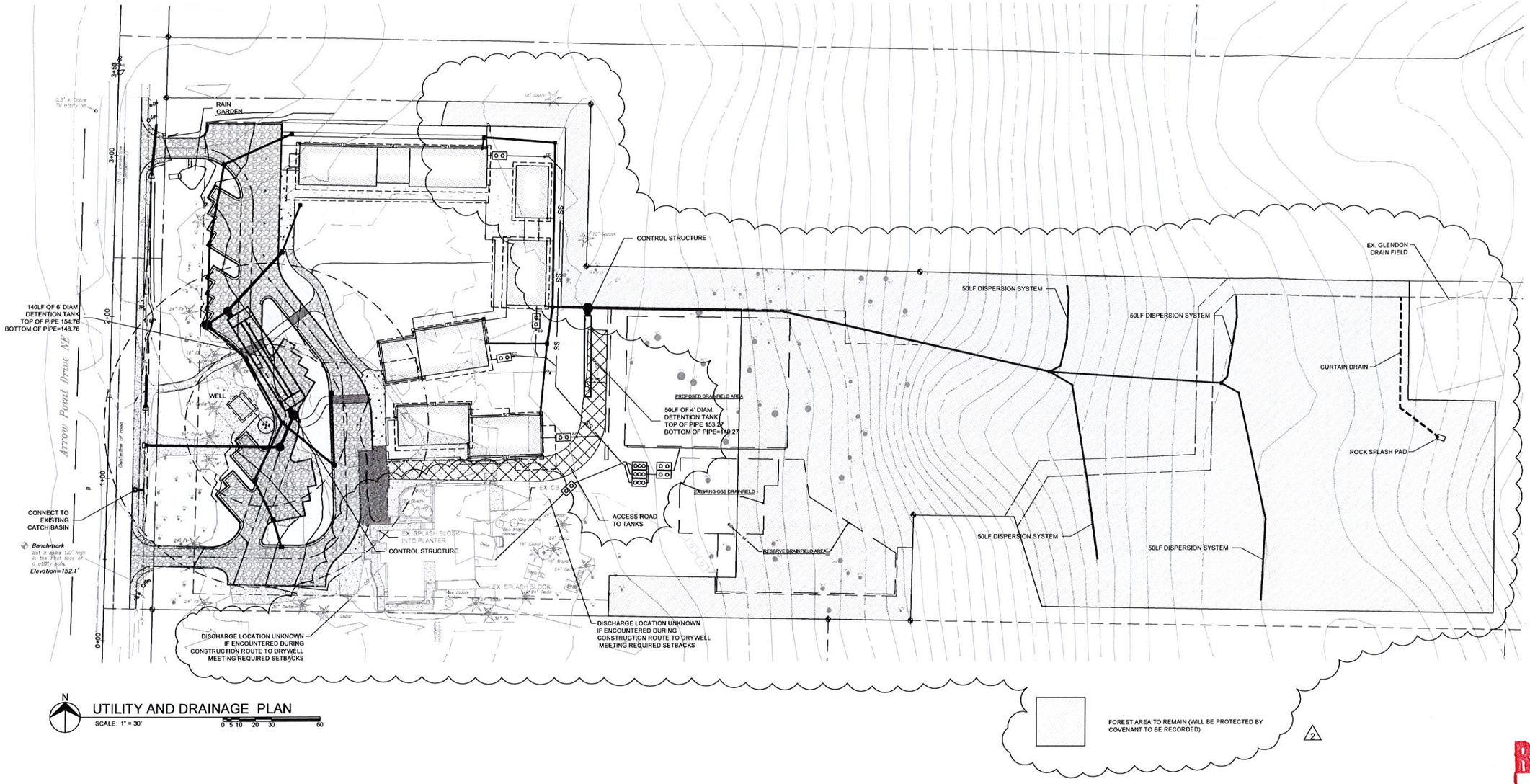
LANDSCAPE AND TREE RETENTION PLAN

DATE:	JUNE 15, 2016
SCALE:	1/16"=1'-0"
DRAWN:	CM
JOB #:	#1210
SHEET:	L-2



N

UTILITY AND DRAINAGE PLAN

SCALE: 1" = 30'

0 5 10 20 30 60

REVISED

NOV 14 2016

Community Development

PRELIMINARY
NOT FOR CONSTRUCTION

REV 2 11/14/16 AEW ADDED EXISTING BUILDING STORM DRAINAGE, CURTAIN DRAIN, EXISTING NEIGHBORING SEPTIC SYSTEM AND FOREST RETENTION AREA.
REV 1 9/21/16 AEW MODIFIED STORM DRAIN SYSTEM.

UTILITY AND DRAINAGE PLAN
MONTESSORI COUNTRY SCHOOL
CONDITIONAL USE PERMIT

BROWNE • WHEELER ENGINEERS, INC
241 ERICKSEN AVENUE NE
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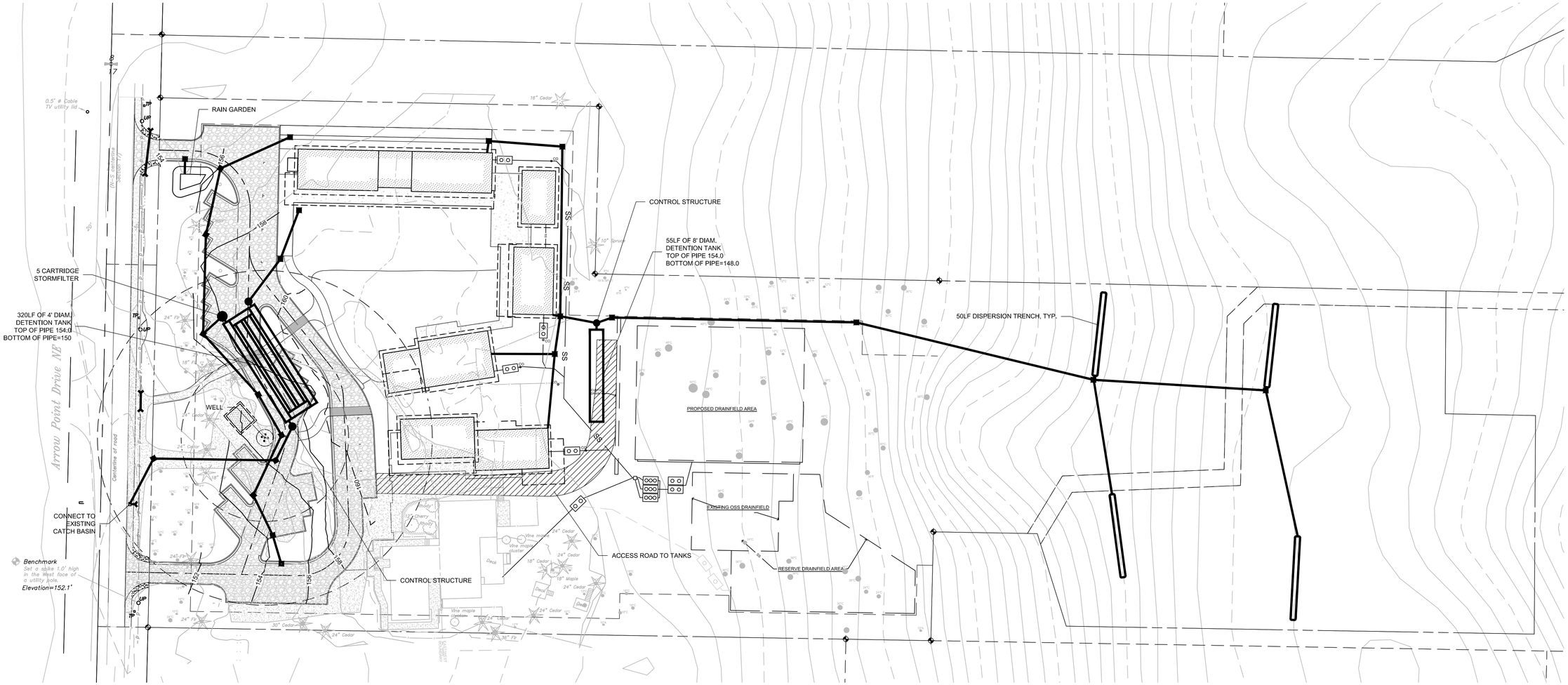
P 206 842 0605 INFO@BrowneWheeler.COM

MONTESSORI COUNTRY SCHOOL
10994 ARROW POINT DRIVE NE
BAINBRIDGE ISLAND WA 98110

DATE ~~9/9/16~~
DESIGNED AEW
DRAWN NDW
CHECKED DWB
PROJECT # MO13-001

C2

2 OF 2



N

UTILITY AND DRAINAGE PLAN

SCALE: 1" = 30'

0 5 10 20 30 60

PRELIMINARY
NOT FOR CONSTRUCTION

UTILITY AND DRAINAGE PLAN
MONTESSORI COUNTRY SCHOOL
CONDITIONAL USE PERMIT

BROWNE • WHEELER
ENGINEERS, INC
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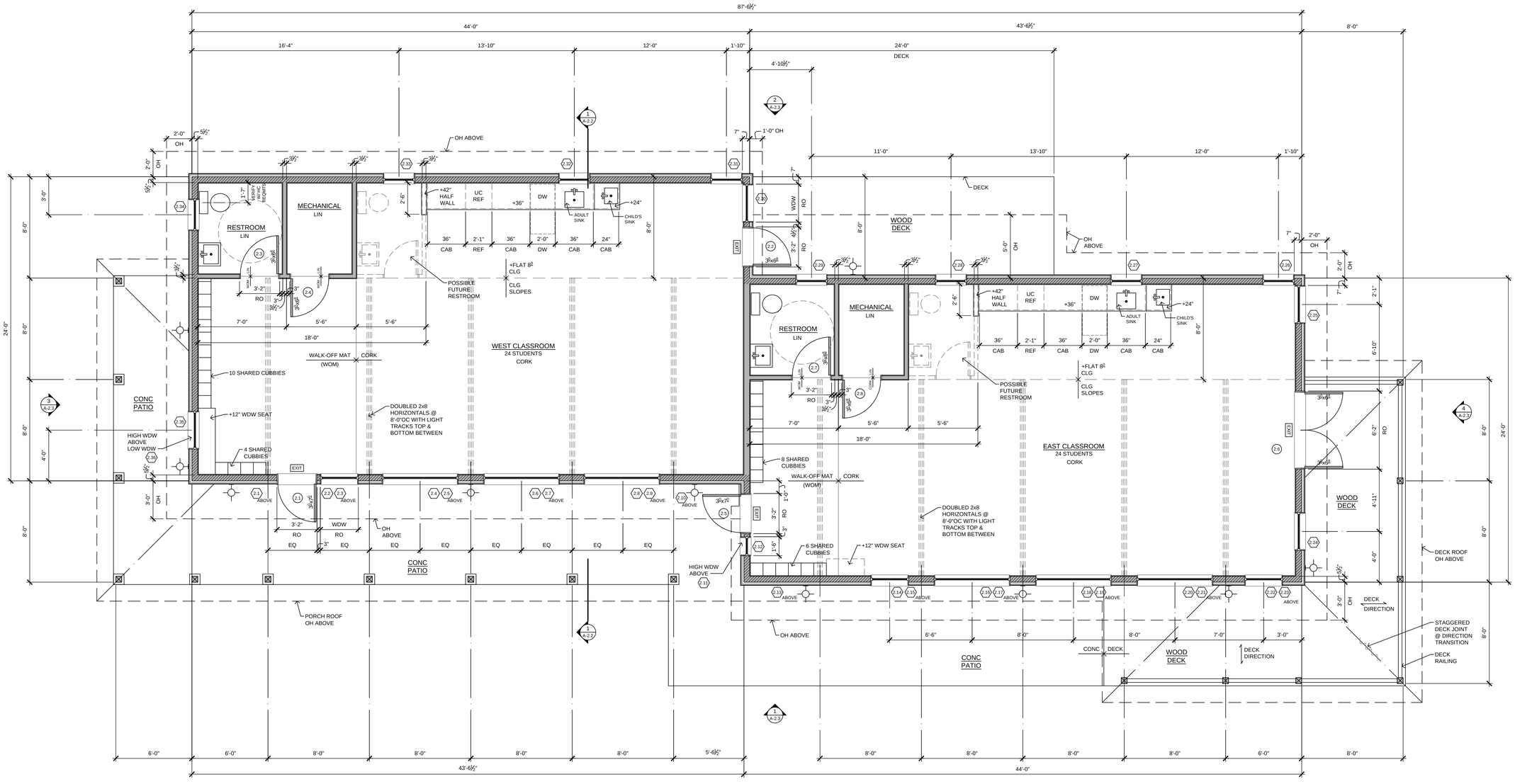
BAINBRIDGE ISLAND, WA 98110
P 206.842.0605 INFO@BrowneWheeler.COM

MONTESSORI COUNTRY
SCHOOL
10994 ARROW POINT DRIVE NE
BAINBRIDGE ISLAND WA 98110

DATE 6/9/16
DESIGNED AEW
DRAWN NDW
CHECKED DWB
PROJECT # MO13-001

C2

FILE NAME: C2 UTILITY AND DRAINAGE PLAN.DWG PLOT DATE: 6/9/2016 3:12 PM PLOT DEVICE: DWG TO PDF.PC3 PAGE SETUP: ---- PLOTTED BY: NIKKI



1 PRIMARY CLASSROOMS BUILDING - FLOOR PLAN

0 1' 2' 4' 8'

N

LEGEND

- EXIT SIGNAGE
- DOOR IDENTIFICATION - SEE SCHEDULE
- WINDOW IDENTIFICATION - SEE SCHEDULE
- EXTERIOR LIGHT SCONCE

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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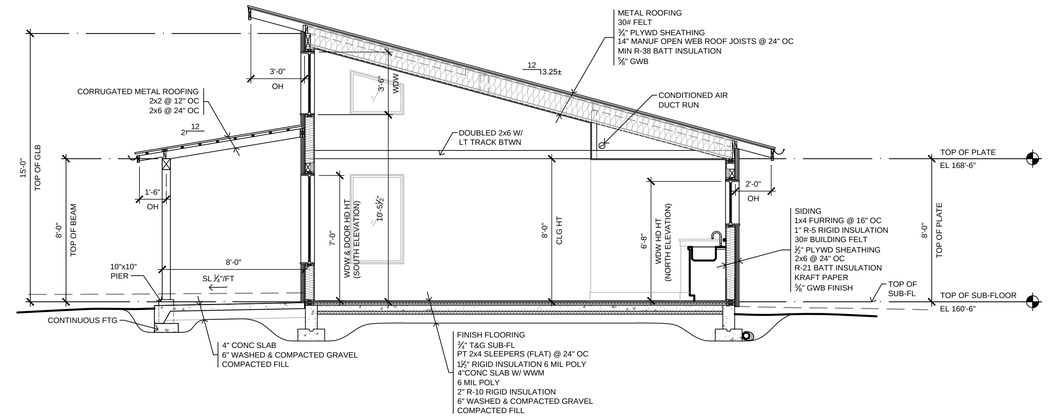
Bainbridge Island, WA

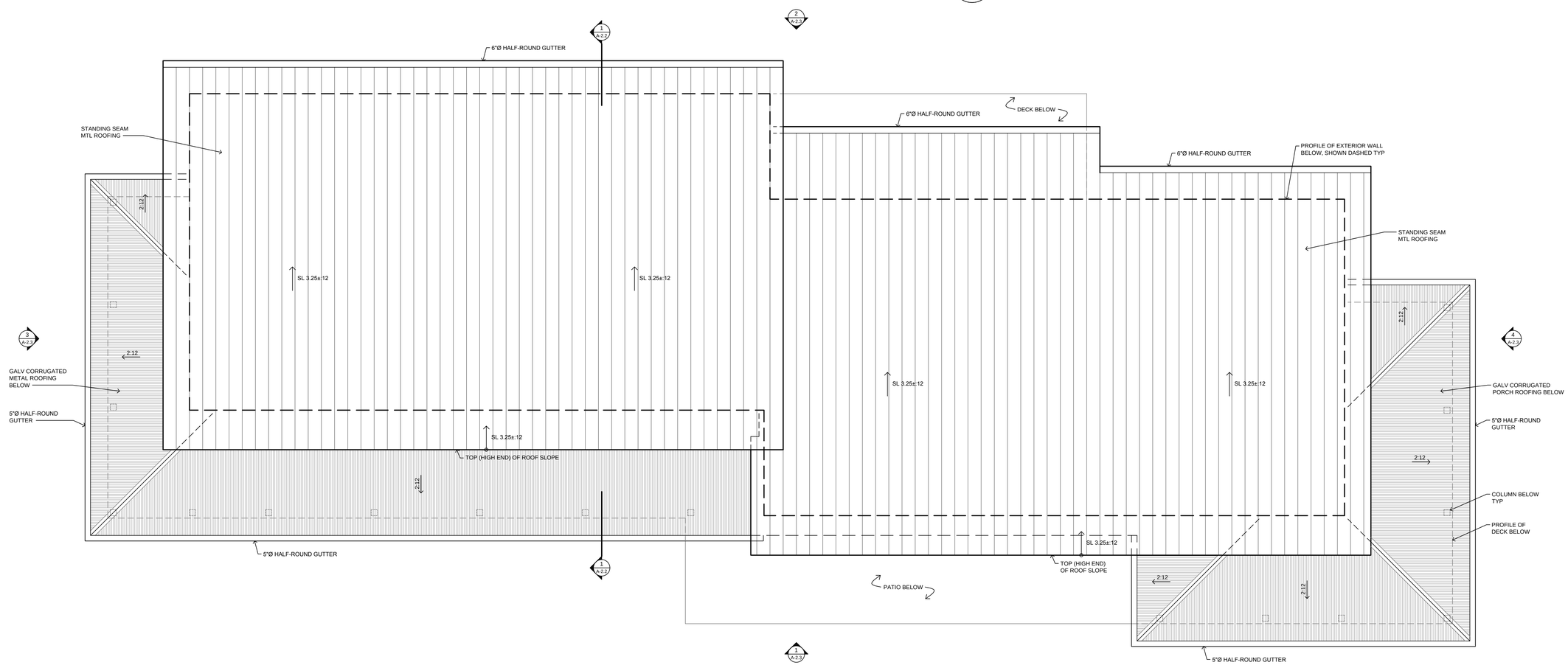
BUILDING 2

PRIMARY CLASSROOMS BUILDING - FLOOR PLAN

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-2.1



1 PRIMARY CLASSROOM SECTION



1 PRIMARY CLASSROOMS BUILDING - ROOF PLAN

0 1' 2' 4' 8'

N

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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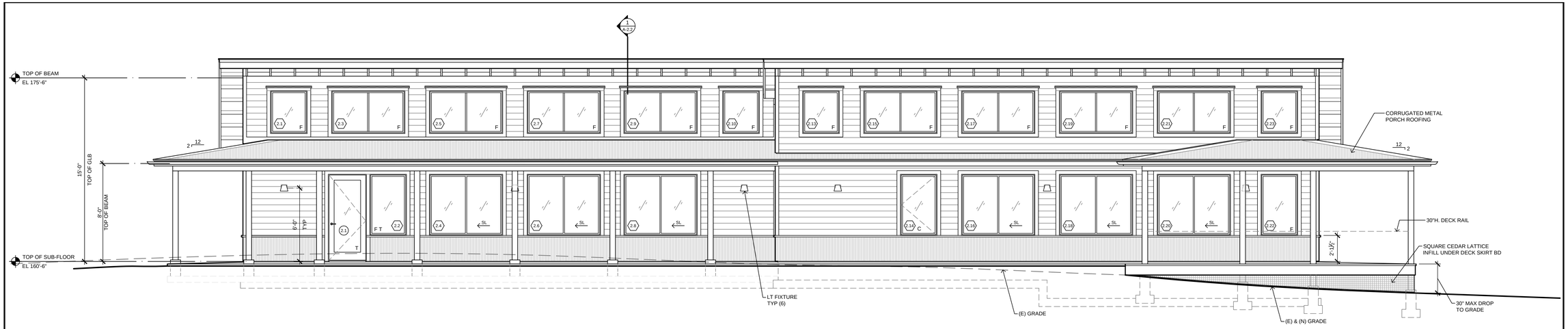
BUILDING 2

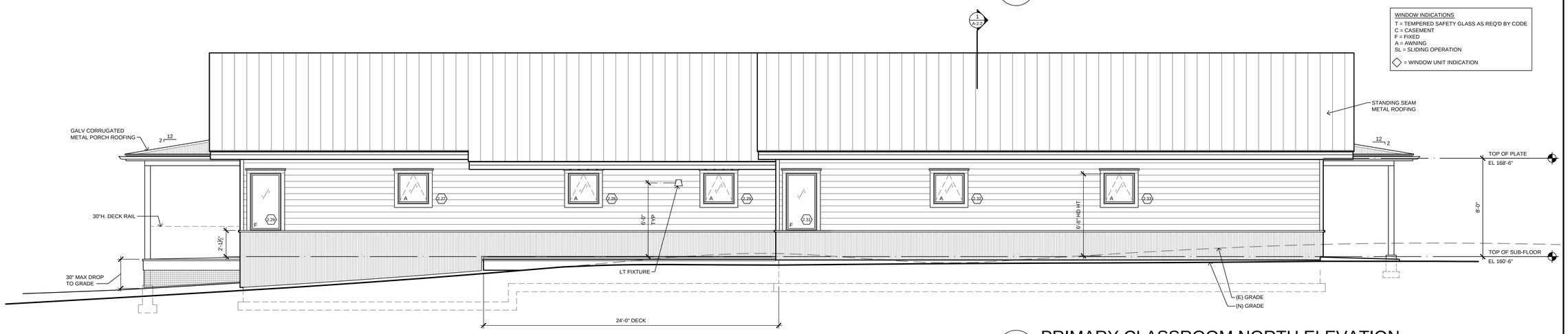
PRIMARY CLASSROOMS BUILDING - SECTION & ROOF PLAN

DATE:	JUNE 15, 2016
SCALE:	1/4"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-2.2

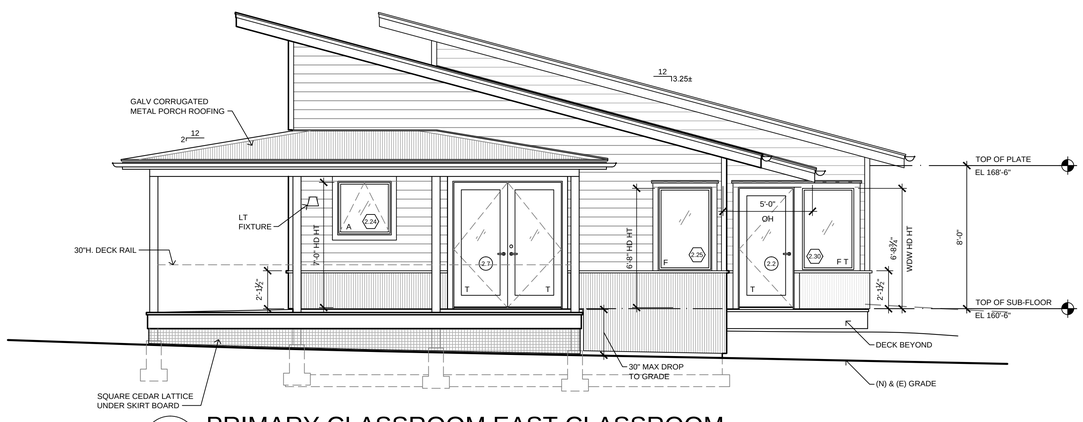


1 PRIMARY CLASSROOM SOUTH ELEVATION

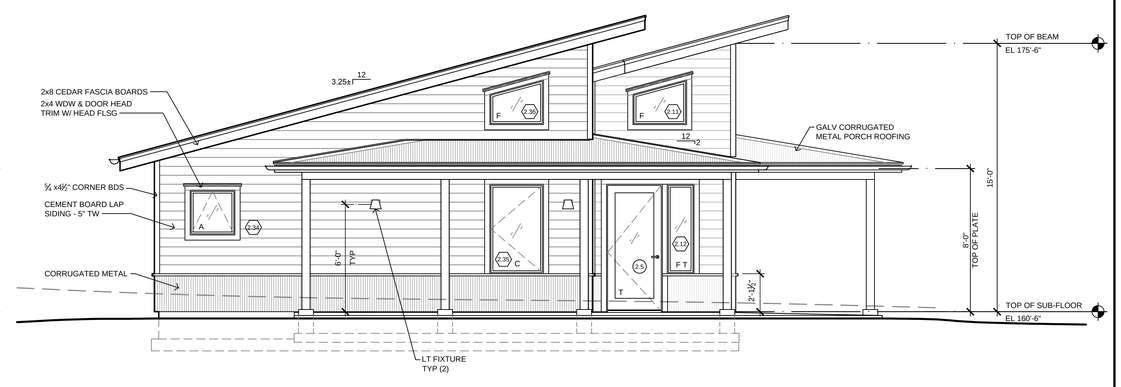
WINDOW INDICATIONS
T = TEMPERED SAFETY GLASS AS REQ'D BY CODE
C = CASEMENT
F = FIXED
A = AWNING
SL = SLIDING OPERATION
◇ = WINDOW UNIT INDICATION



2 PRIMARY CLASSROOM NORTH ELEVATION



4 PRIMARY CLASSROOM EAST CLASSROOM



3 PRIMARY CLASSROOM WEST ELEVATION

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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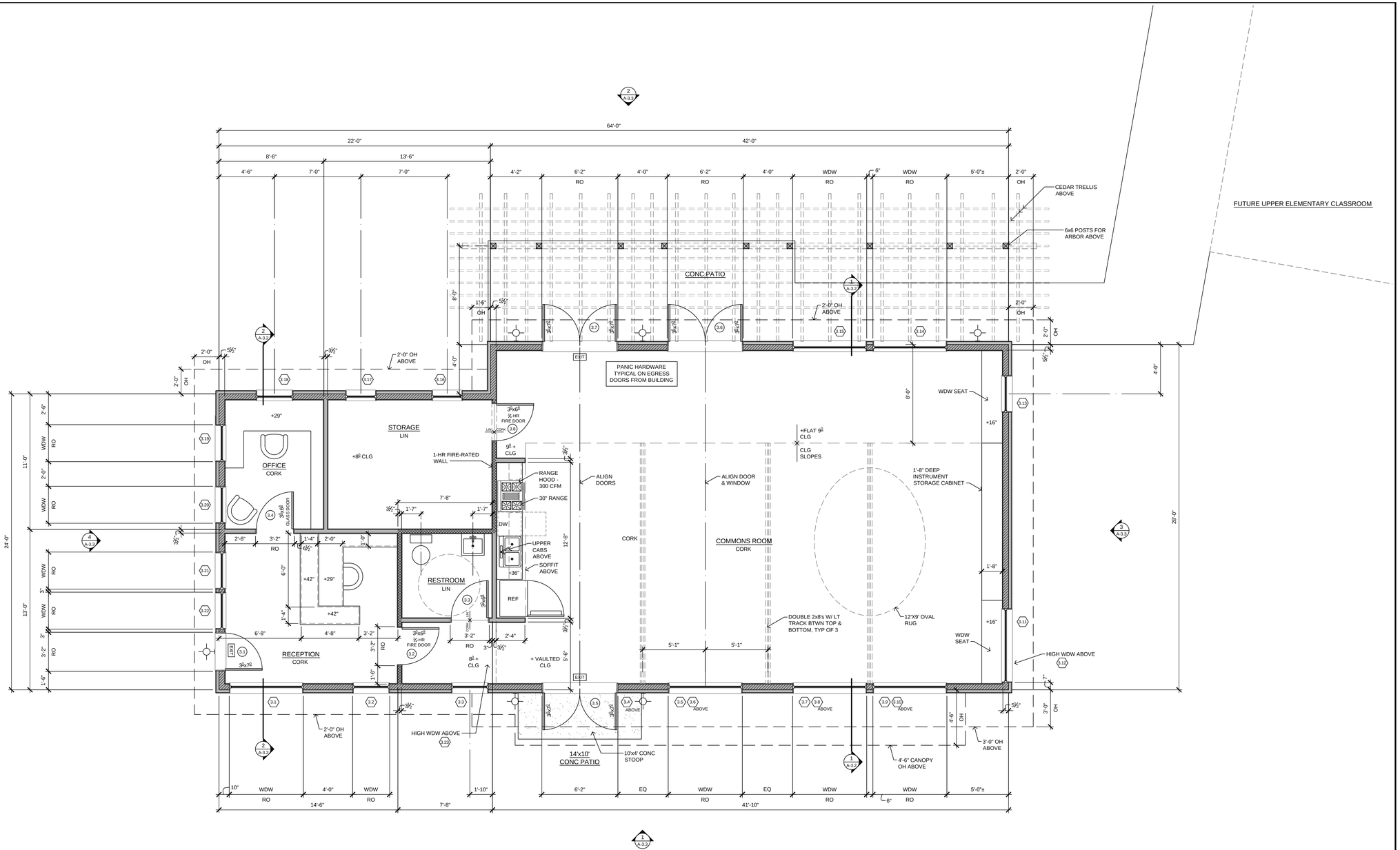
BUILDING 2

PRIMARY CLASSROOMS BUILDING - ELEVATIONS

DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET:

A-2.3



1 OFFICE & COMMONS BUILDING - FLOOR PLAN

0 1' 2' 4' 8'

N

PRIMARY CLASSROOMS

LEGEND

- EXIT SIGNAGE
- DOOR IDENTIFICATION - SEE SCHEDULE
- WINDOW IDENTIFICATION - SEE SCHEDULE
- EXTERIOR LIGHT SCONCE

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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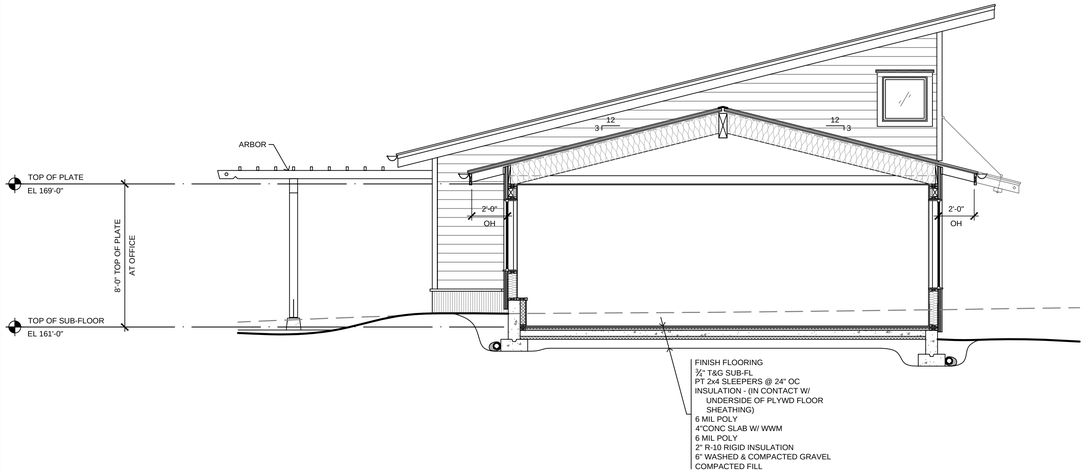
Bainbridge Island, WA

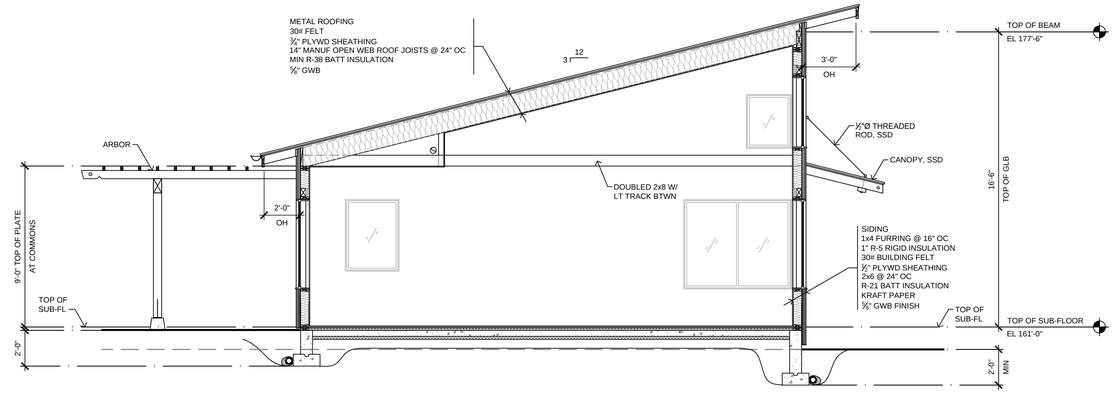
BUILDING 3

OFFICE / COMMONS BUILDING FLOOR PLAN

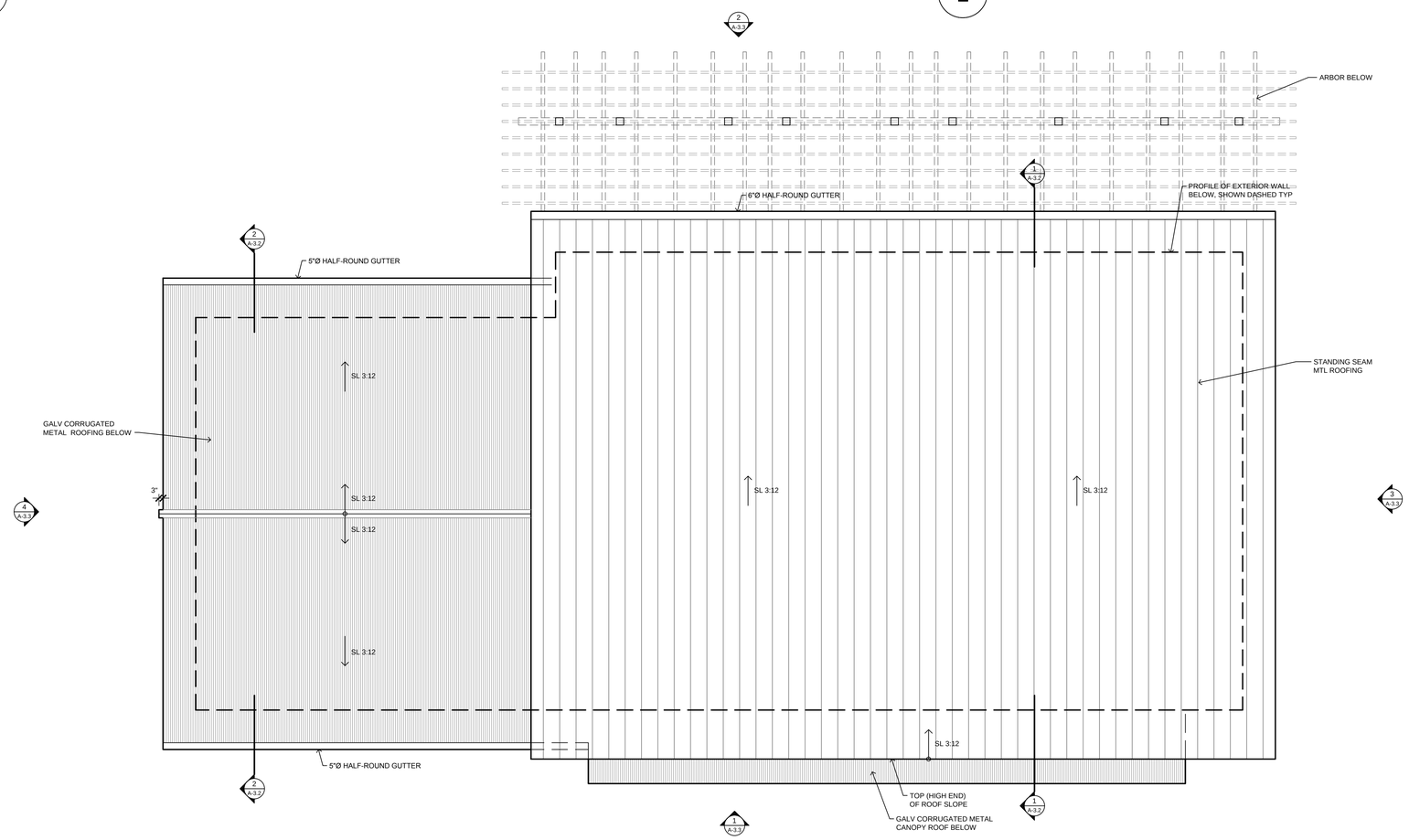
DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-3.1



2 OFFICE / COMMONS BUILDING SECTION



1 OFFICE / COMMONS BUILDING SECTION



1 OFFICE / COMMONS BUILDING - ROOF PLAN

0 1' 2' 4' 8'

N

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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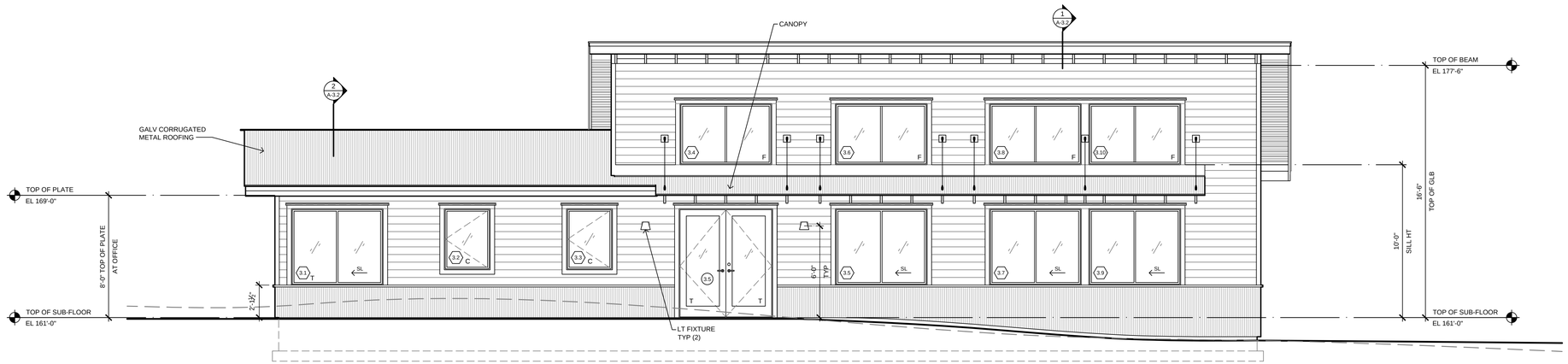
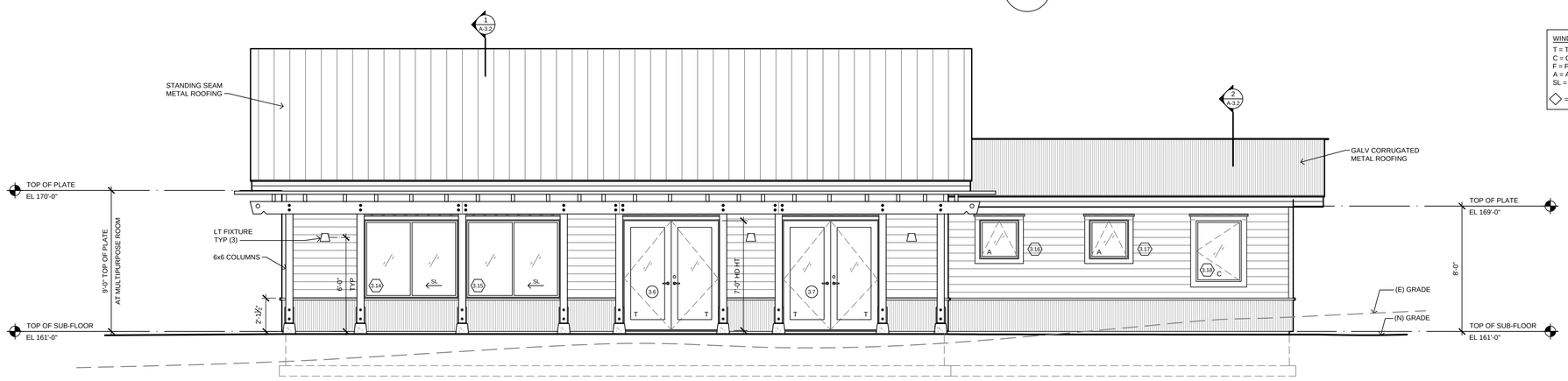
BUILDING 3

OFFICE / COMMONS BUILDING SECTIONS & ROOF PLAN

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-3.2

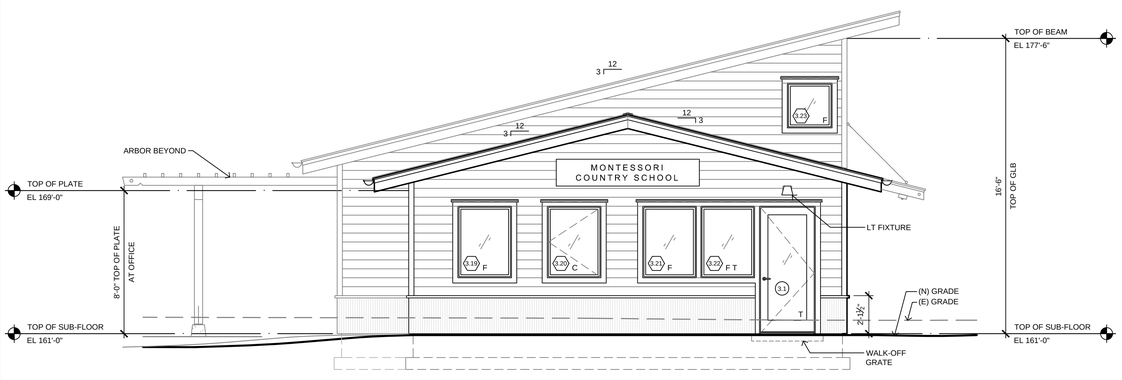


1 OFFICE / COMMONS BUILDING - SOUTH ELEVATION

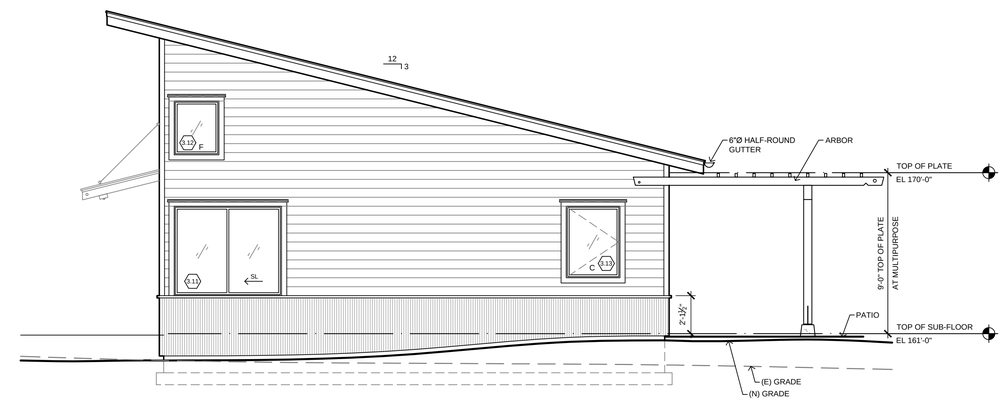


2 OFFICE / COMMONS BUILDING - NORTH ELEVATION

WINDOW INDICATIONS
T = TEMPERED SAFETY GLASS AS REQ'D BY CODE
C = CASEMENT
F = FIXED
A = AWNING
SL = SLIDING OPERATION
◇ = WINDOW UNIT INDICATION



4 OFFICE / COMMONS BUILDING - WEST ELEVATION



3 OFFICE / COMMONS BUILDING - EAST ELEVATION

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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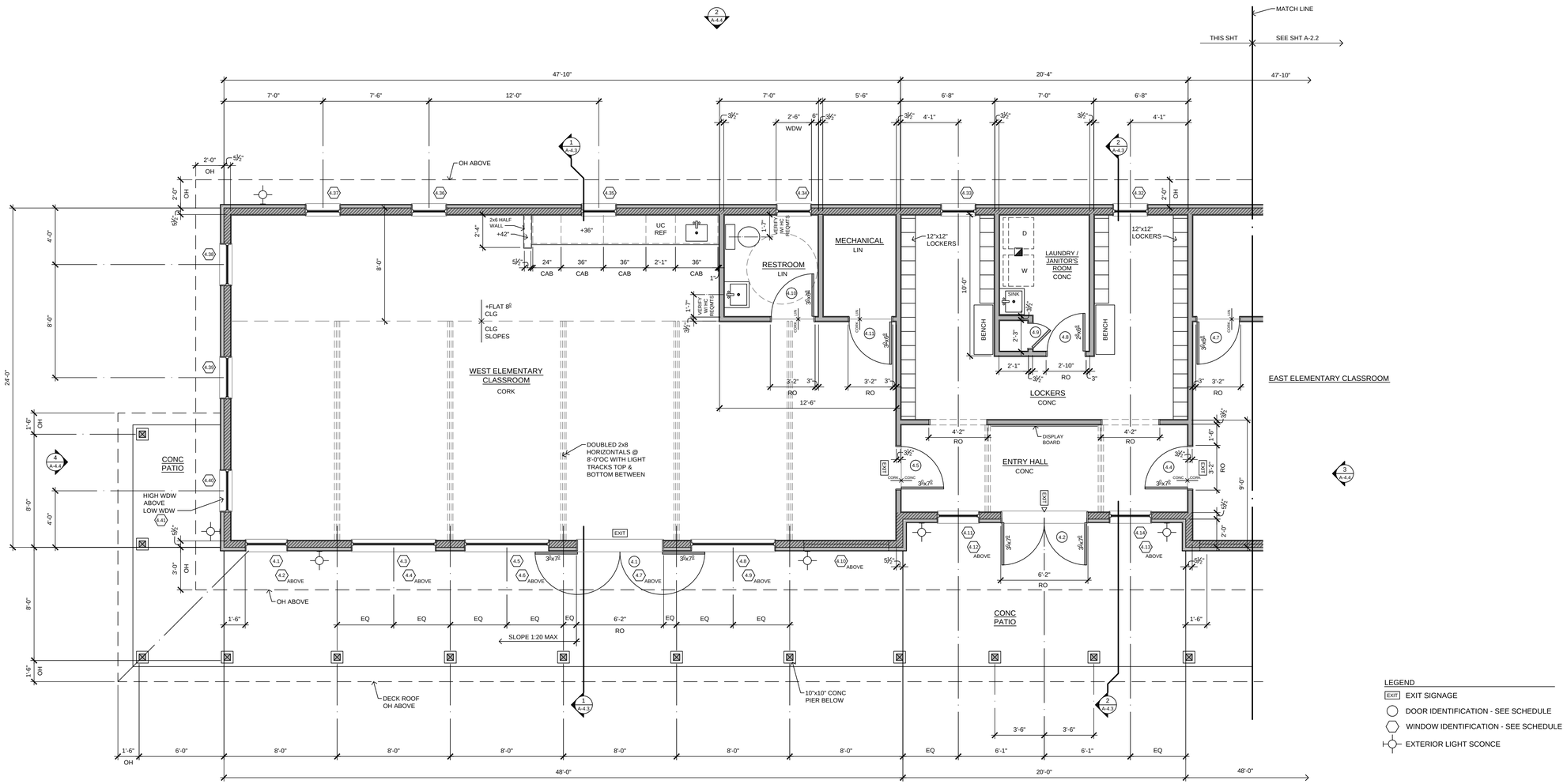
Bainbridge Island, WA

BUILDING 3

OFFICE / COMMONS BUILDING ELEVATIONS

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-3.3



LEGEND

- EXIT — EXIT SIGNAGE
- DOOR IDENTIFICATION - SEE SCHEDULE
- WINDOW IDENTIFICATION - SEE SCHEDULE
- EXTERIOR LIGHT SCONCE

1 ELEMENTARY CLASSROOMS BUILDING - FLOOR PLAN

0 1' 2' 4' 8'

N

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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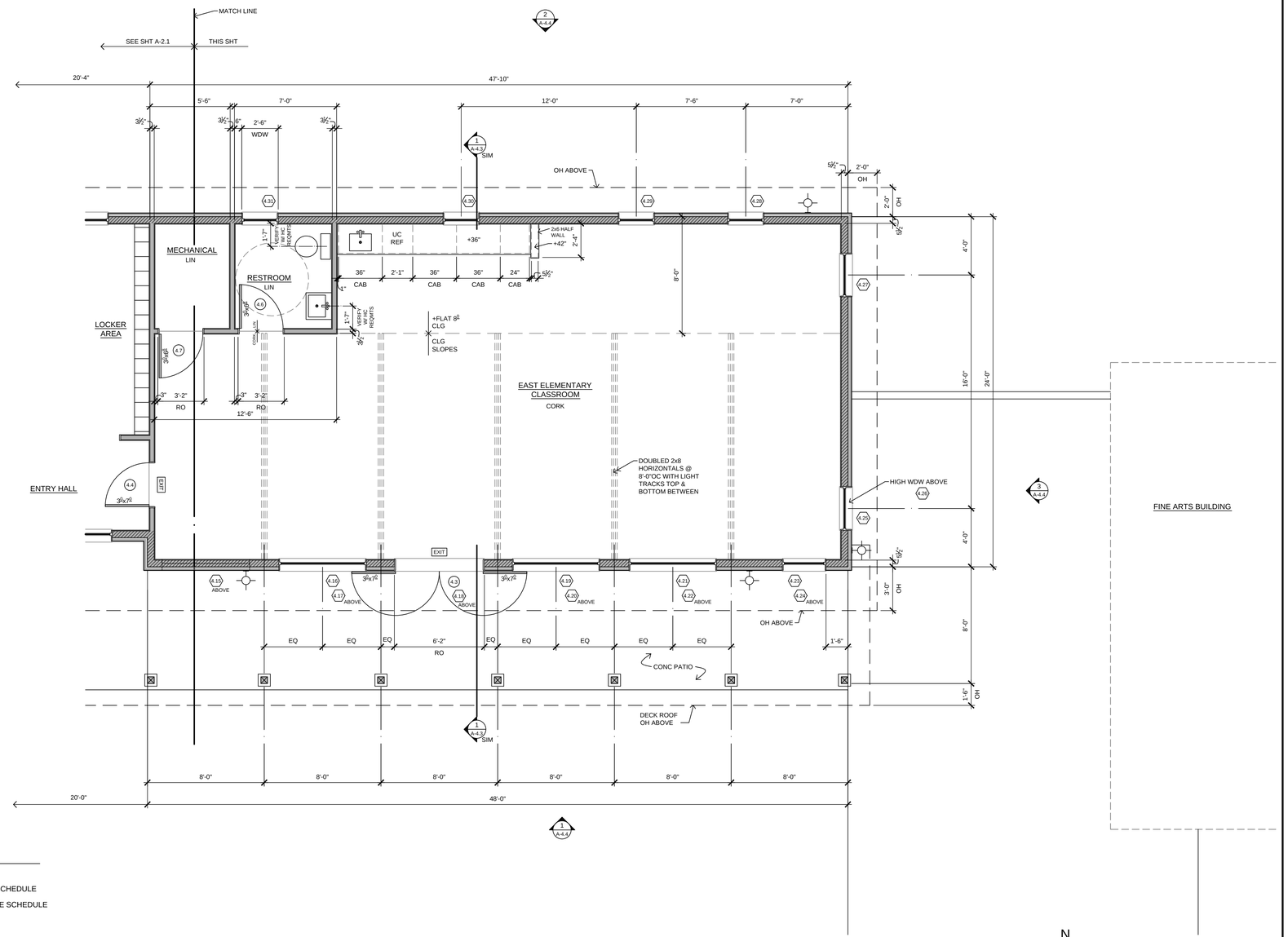
Bainbridge Island, WA

BUILDING 4

ELEMENTARY CLASSROOMS BUILDING - FLOOR PLAN

DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET:

A-4.1



LEGEND

- EXIT SIGNAGE
- DOOR IDENTIFICATION - SEE SCHEDULE
- WINDOW IDENTIFICATION - SEE SCHEDULE
- EXTERIOR LIGHT SCONCE

1 ELEMENTARY CLASSROOMS BUILDING - CONTINUATION OF FLOOR PLAN

0 1' 2' 4' 8'

N

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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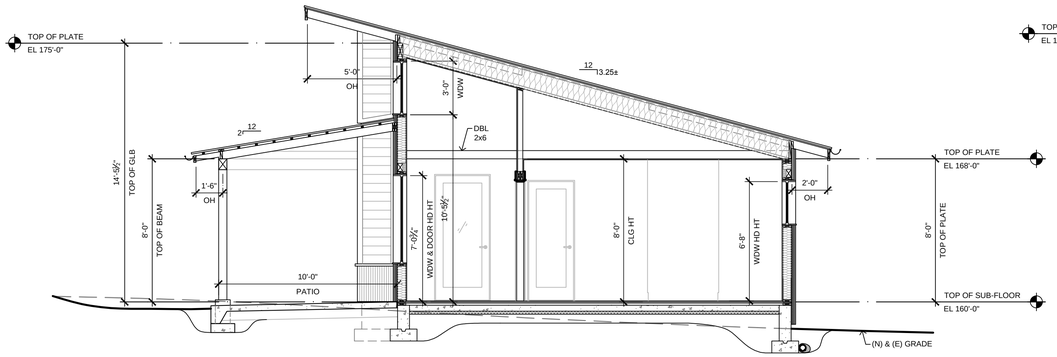
BUILDING 4

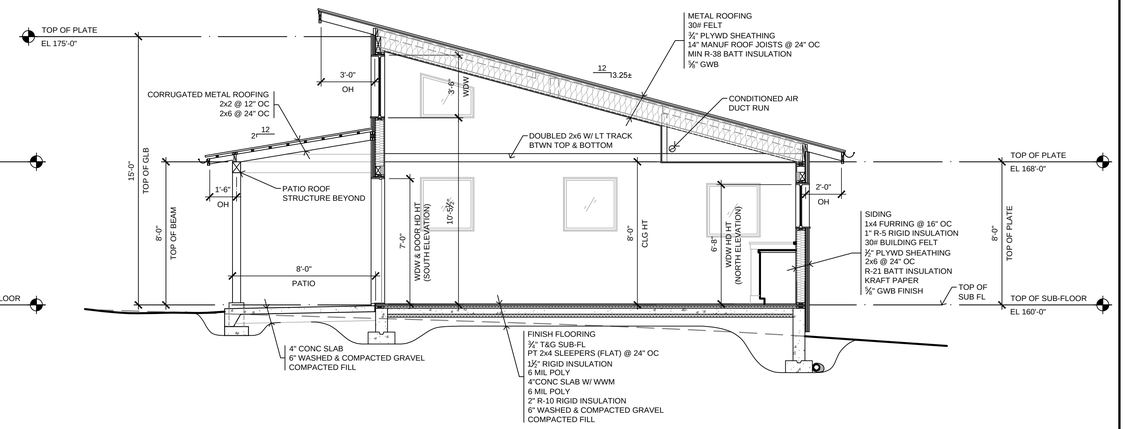
ELEMENTARY CLASSROOMS BUILDING - CONTINUATION OF FLOOR PLAN

DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET:

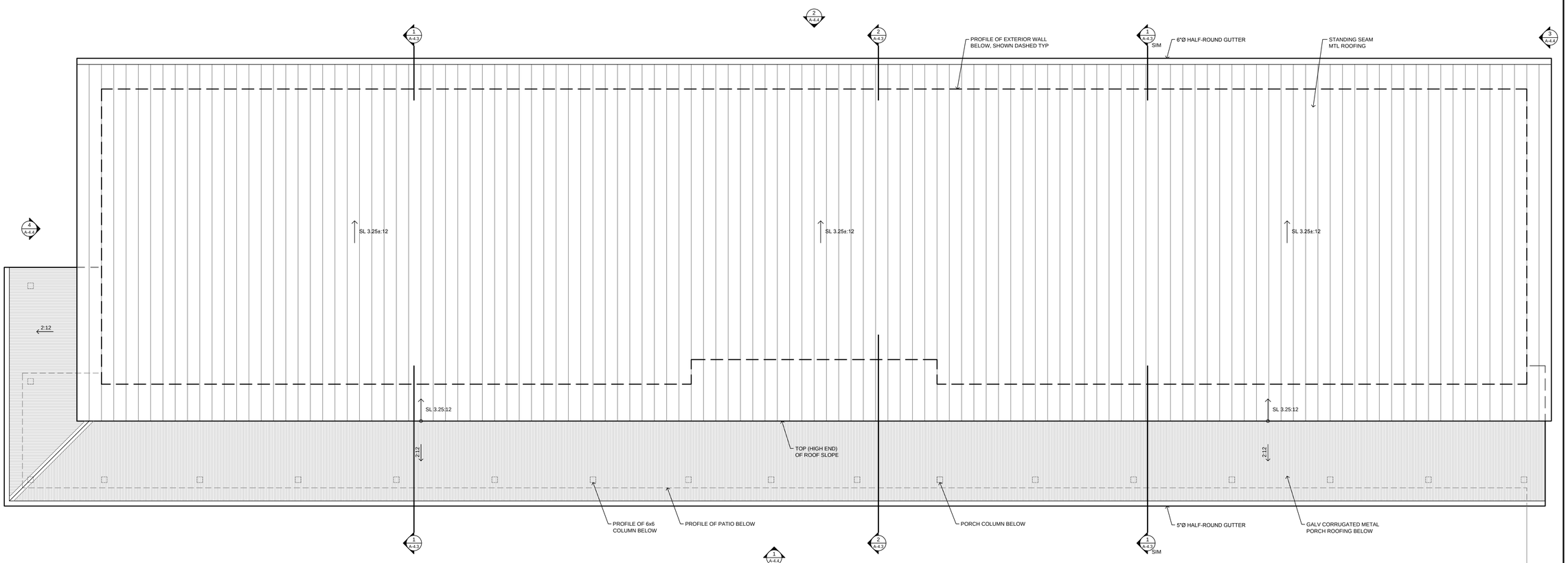
A-4.2



2 ELEMENTARY CLASSROOMS BUILDING SECTION



1 ELEMENTARY CLASSROOMS BUILDING SECTION



1 ELEMENTARY CLASSROOMS BUILDING - ROOF PLAN

0 1' 2' 4' 8'

N

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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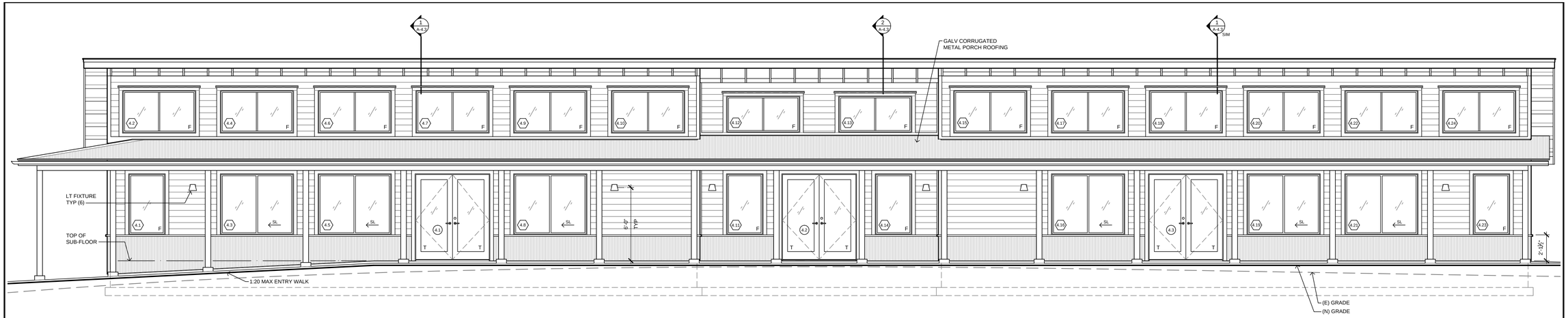
Bainbridge Island, WA

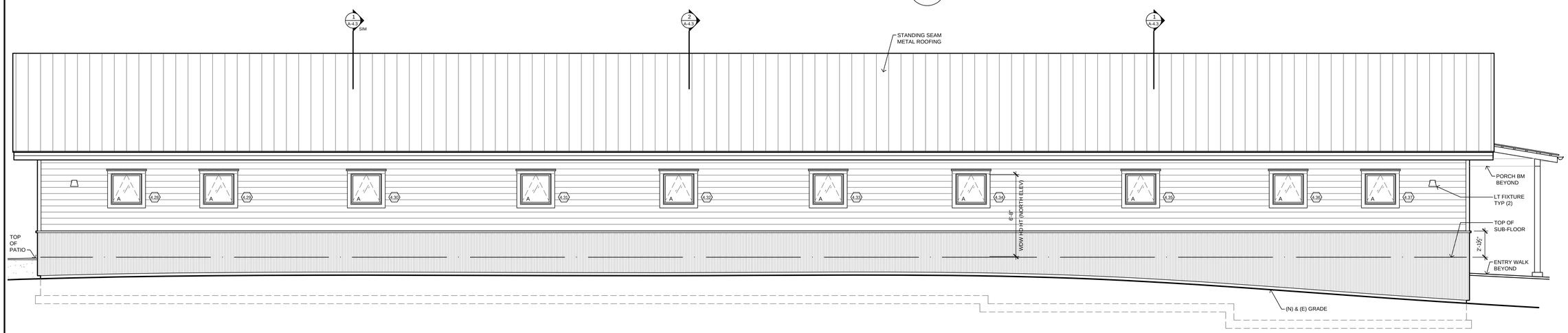
BUILDING 4

ELEMENTARY CLASSROOMS BUILDING - SECTIONS & ROOF PLAN

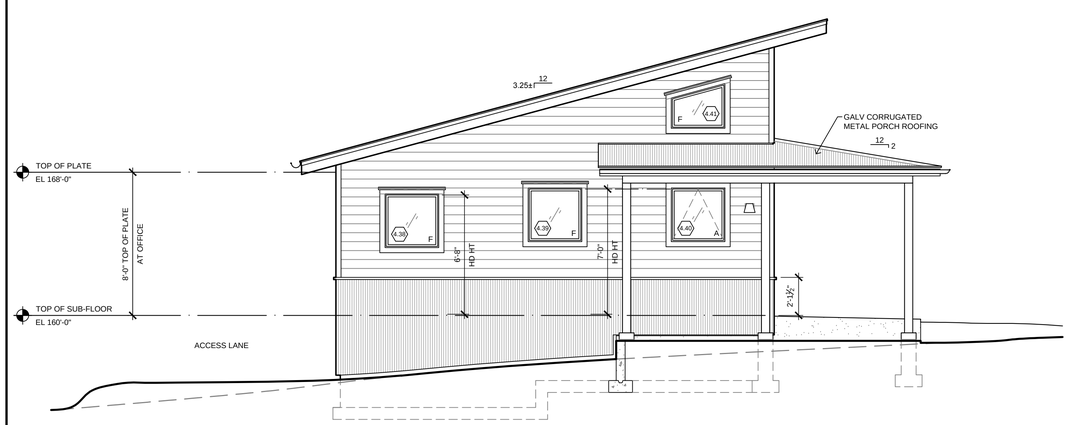
DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-4.3



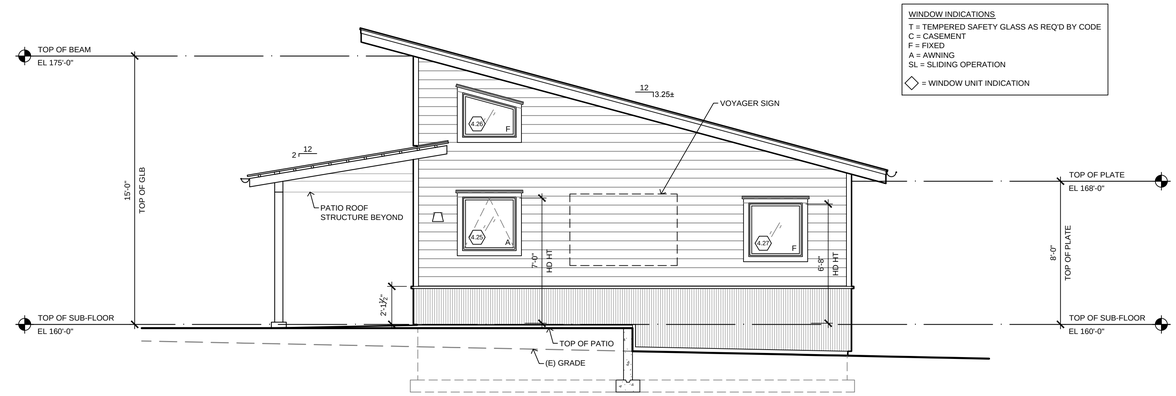
1 ELEMENTARY CLASSROOM BUILDING - SOUTH ELEVATION



2 ELEMENTARY CLASSROOM BUILDING - NORTH ELEVATION



4 ELEMENTARY CLASSROOM BUILDING - WEST ELEVATION



WINDOW INDICATIONS
T = TEMPERED SAFETY GLASS AS REQ'D BY CODE
C = CASEMENT
F = FIXED
A = AWNING
SL = SLIDING OPERATION
◇ = WINDOW UNIT INDICATION

3 ELEMENTARY CLASSROOM BUILDING - EAST ELEVATION

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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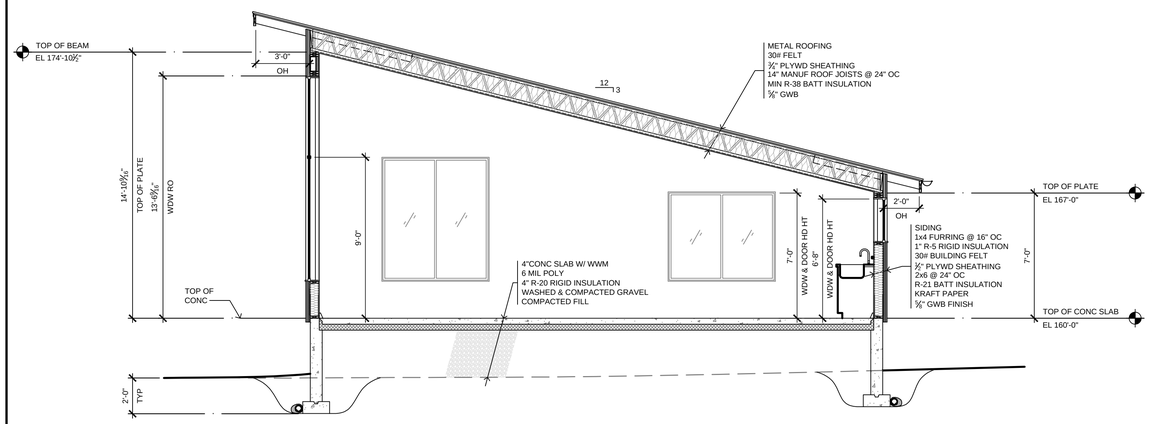
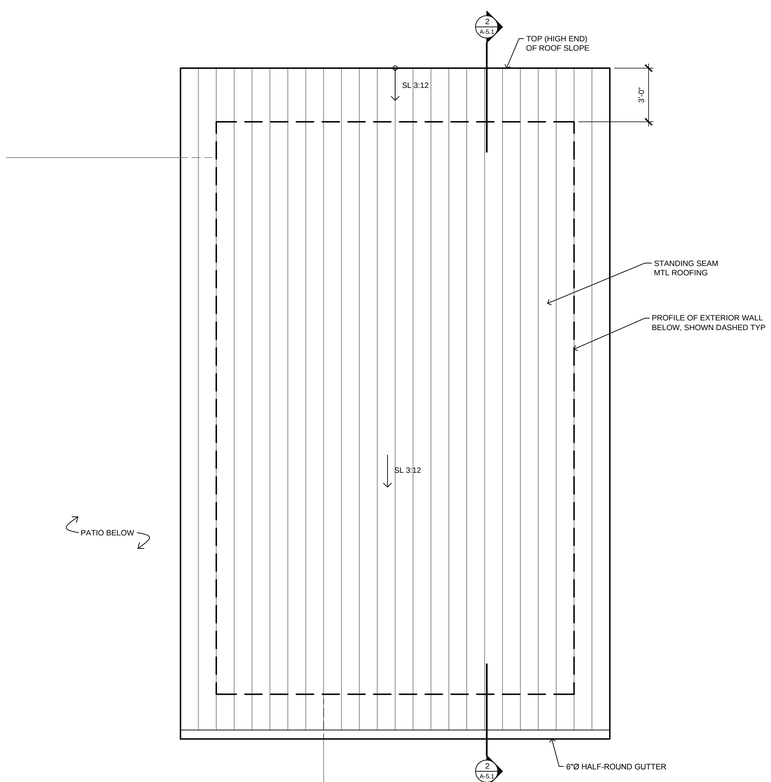
BUILDING 4

ELEMENTARY CLASSROOM BUILDING - ELEVATIONS

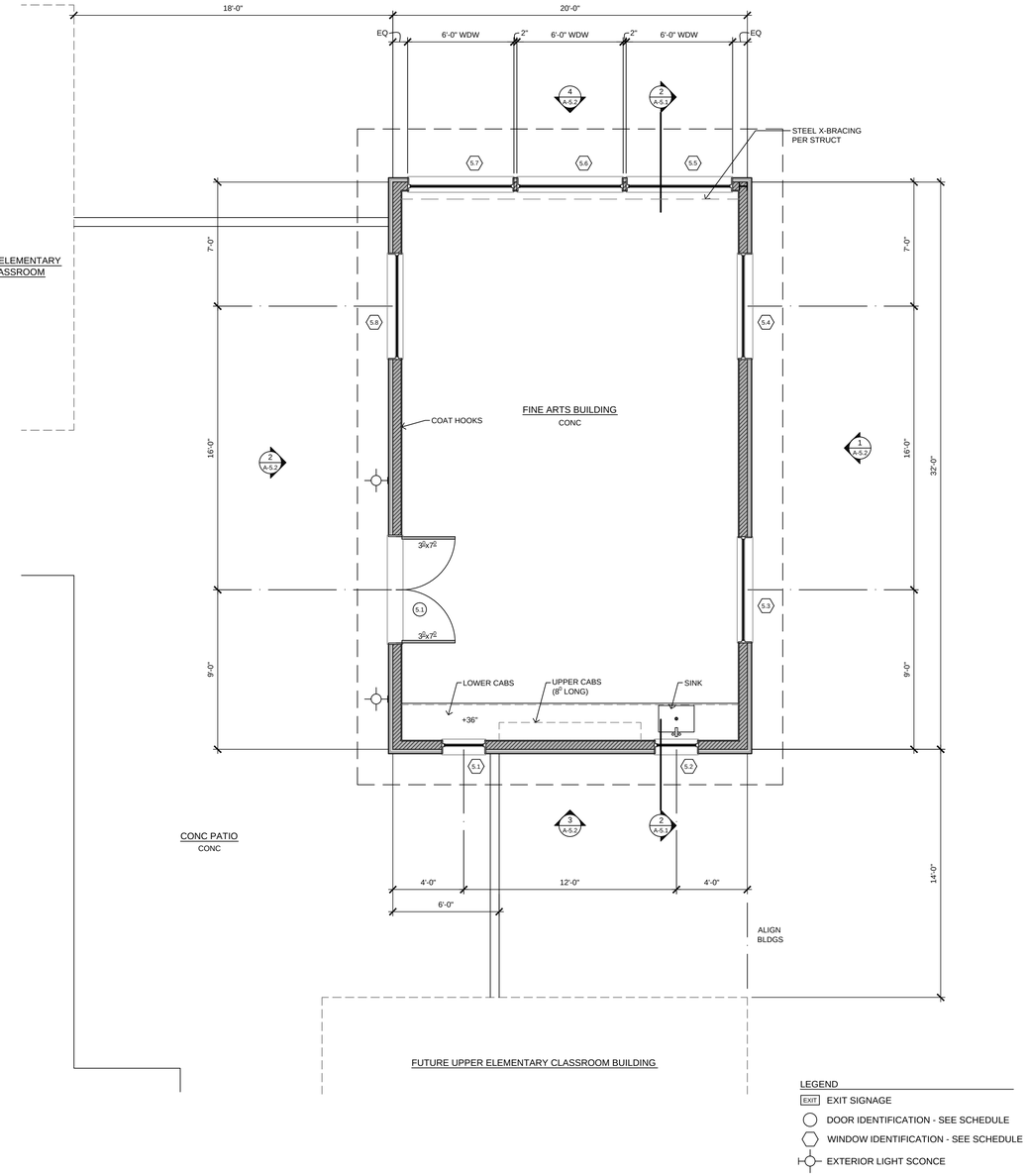
DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET: A-4.4



2 FINE ARTS BUILDING SECTION



3 FINE ARTS BUILDING - ROOF PLAN



LEGEND

- EXIT — EXIT SIGNAGE
- DOOR IDENTIFICATION - SEE SCHEDULE
- WINDOW IDENTIFICATION - SEE SCHEDULE
- EXTERIOR LIGHT SCONCE

1 FINE ARTS BUILDING - FLOOR PLAN

0 1' 2' 4' 8'

N

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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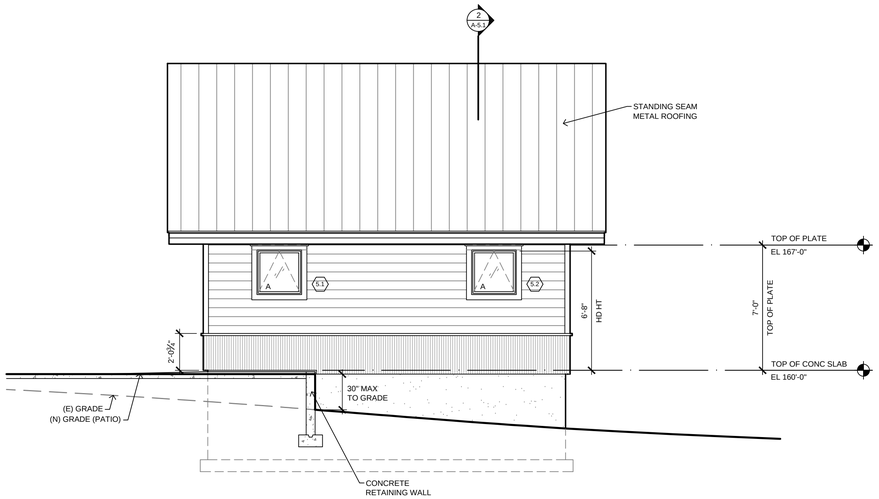
Bainbridge Island, WA

BUILDING 5

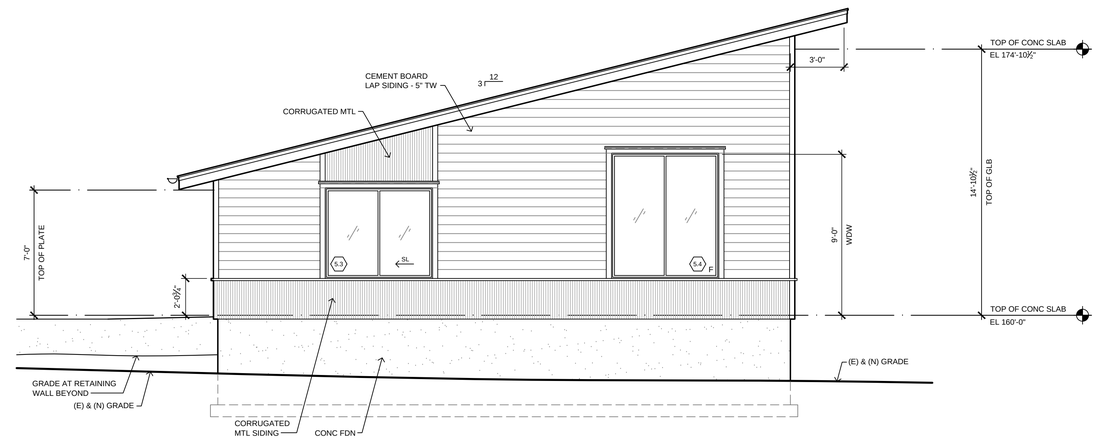
FINE ARTS BUILDING - FLOOR PLAN, SECTION & ROOF PLAN

DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET:

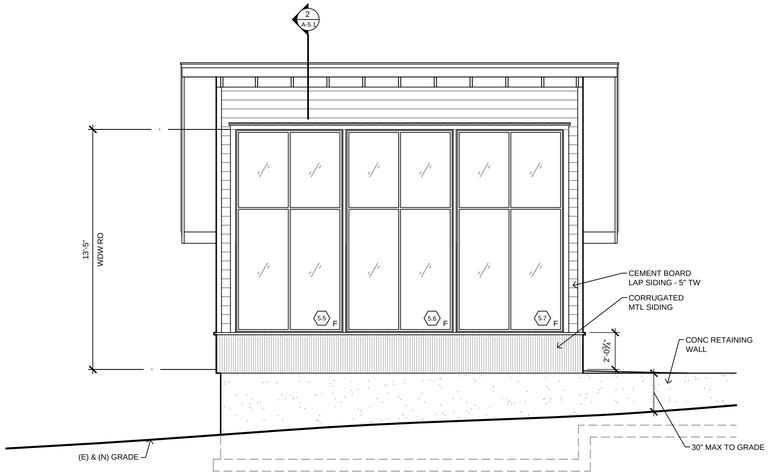
A-5.1



3 FINE ARTS BUILDING SOUTH ELEVATION

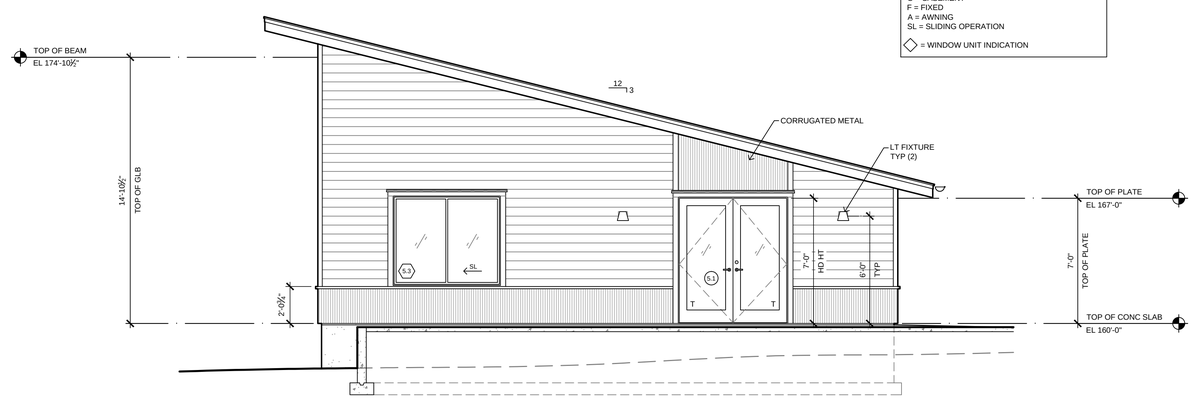


1 FINE ARTS BUILDING EAST ELEVATION



4 FINE ARTS BUILDING NORTH ELEVATION

WINDOW INDICATIONS
T = TEMPERED SAFETY GLASS AS REQ'D BY CODE
C = CASEMENT
F = FIXED
A = AWNING
SL = SLIDING OPERATION
◇ = WINDOW UNIT INDICATION



2 FINE ARTS BUILDING WEST ELEVATION

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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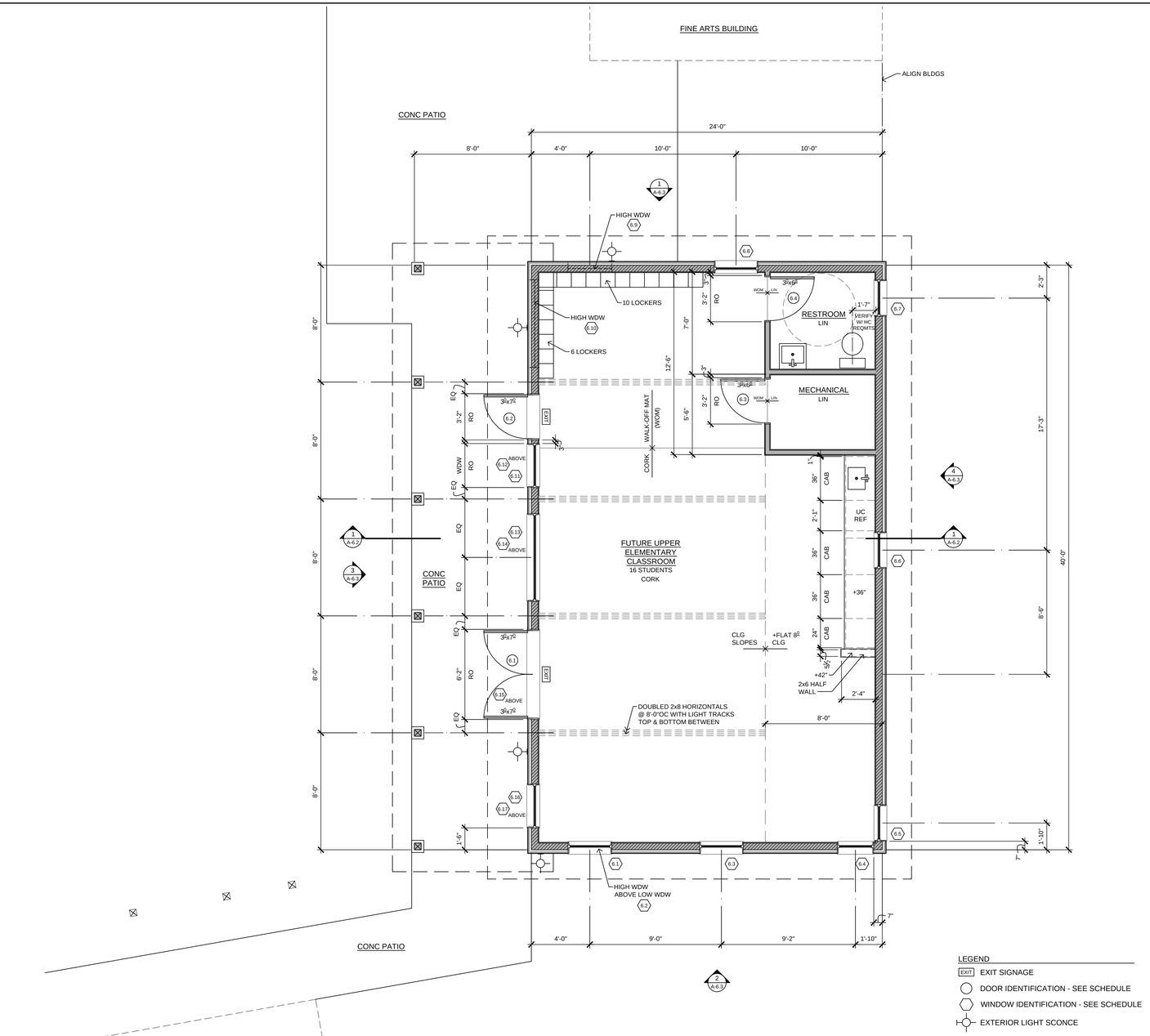
Bainbridge Island, WA

BUILDING 5

FINE ARTS BUILDING ELEVATIONS

DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET:

A-5.2



OFFICE / COMMONS BUILDING

1 FUTURE UPPER ELEMENTARY CLASSROOM BUILDING - FLOOR PLAN

0 1' 2' 4' 8'

N

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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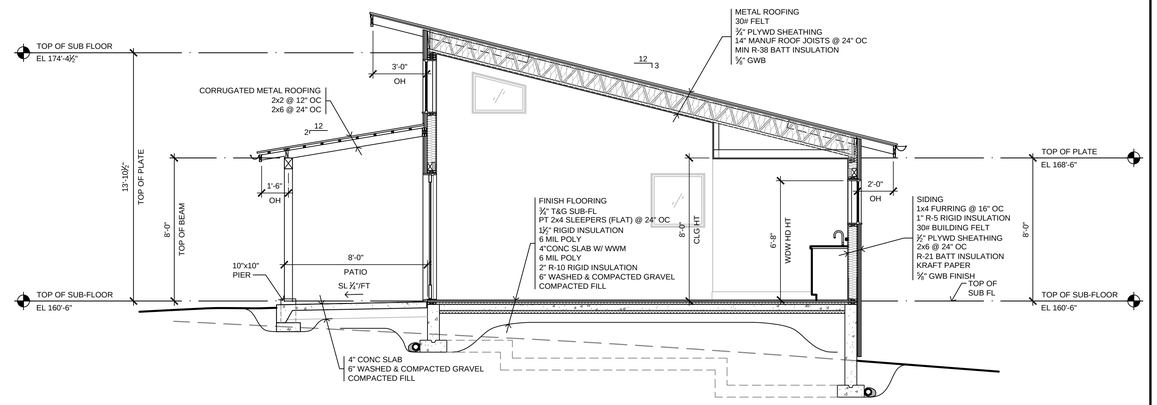
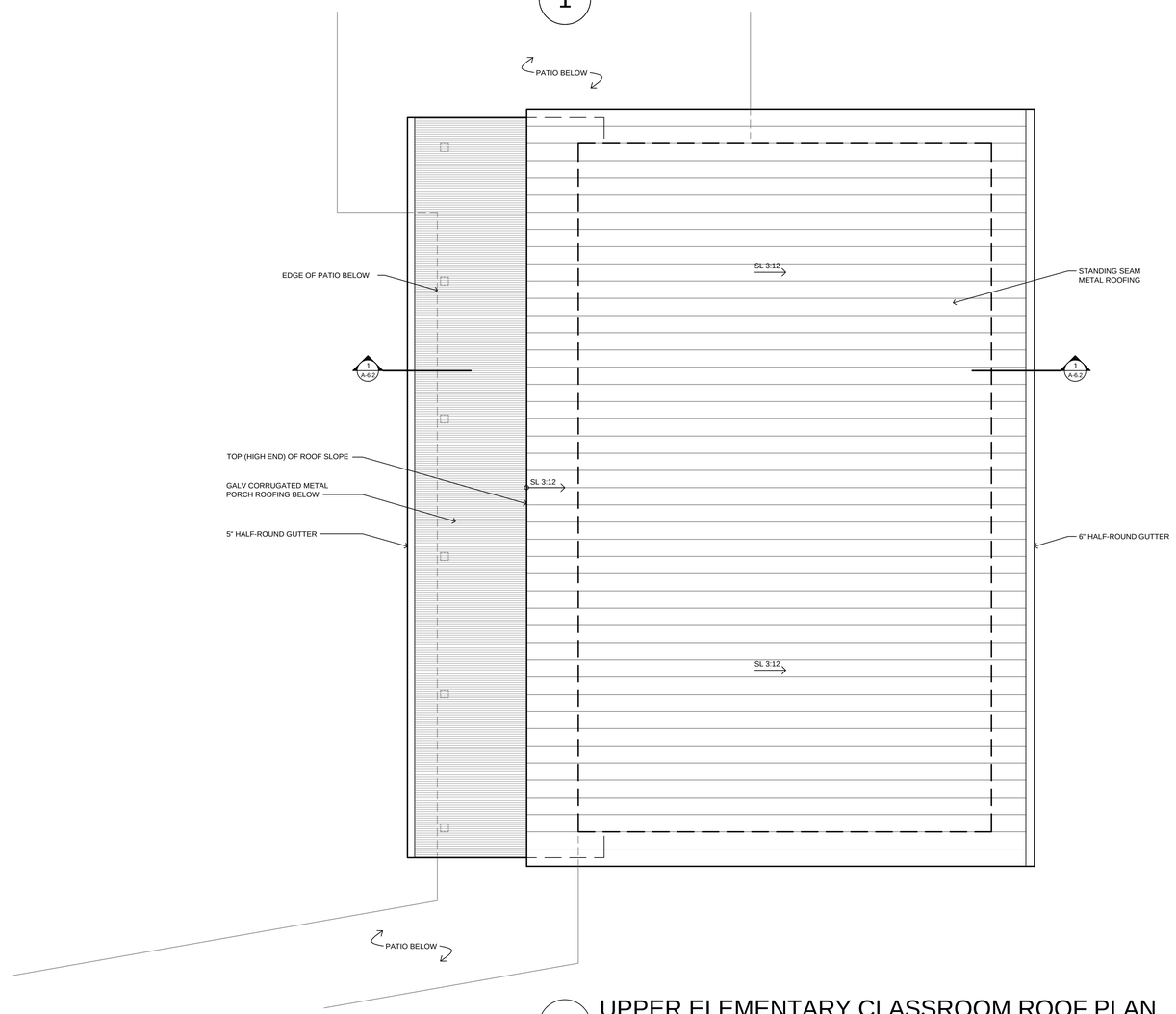
BUILDING 6

FUTURE UPPER ELEMENTARY CLASSROOM BUILDING FLOOR PLAN

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	A-6.1



1 UPPER ELEMENTARY CLASSROOM SECTION



2 UPPER ELEMENTARY CLASSROOM ROOF PLAN

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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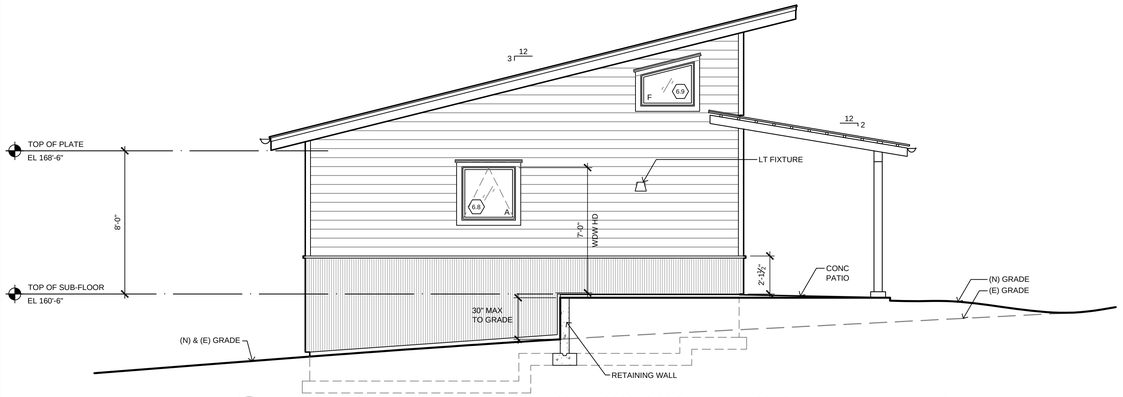
BUILDING 6

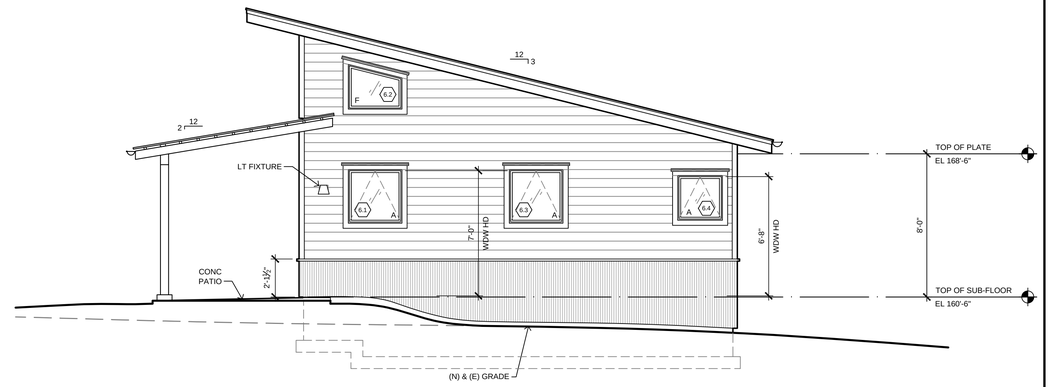
FUTURE UPPER ELEMENTARY CLASSROOM BUILDING SECTION & ROOF PLAN

DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET:

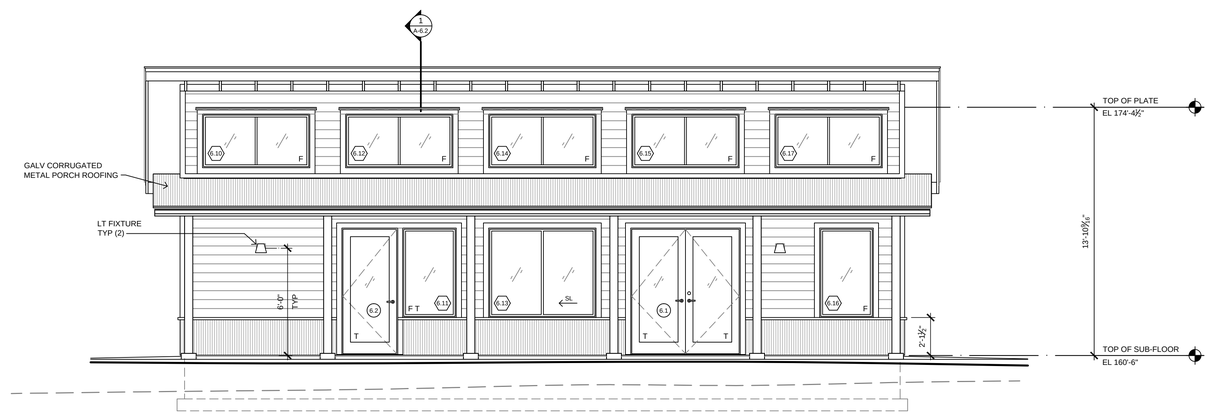
A-6.2



1 UPPER ELEMENTARY CLASSROOM - NORTH ELEVATION

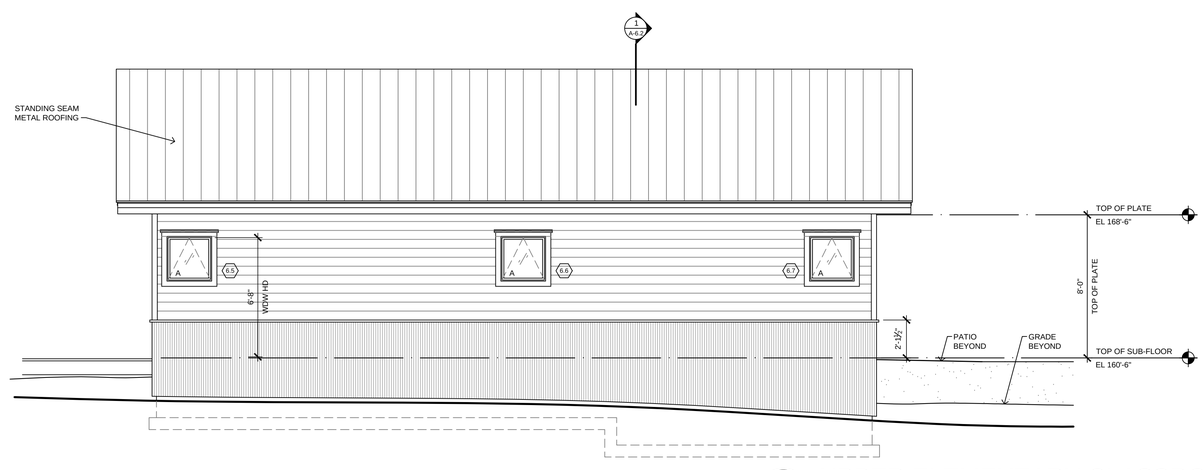


2 UPPER ELEMENTARY CLASSROOM - SOUTH ELEVATION



WINDOW INDICATIONS
T = TEMPERED SAFETY GLASS AS REQ'D BY CODE
C = CASEMENT
F = FIXED
A = AWNING
SL = SLIDING OPERATION
◇ = WINDOW UNIT INDICATION

3 UPPER ELEMENTARY CLASSROOM - WEST ELEVATION



4 UPPER ELEMENTARY CLASSROOM - EAST ELEVATION

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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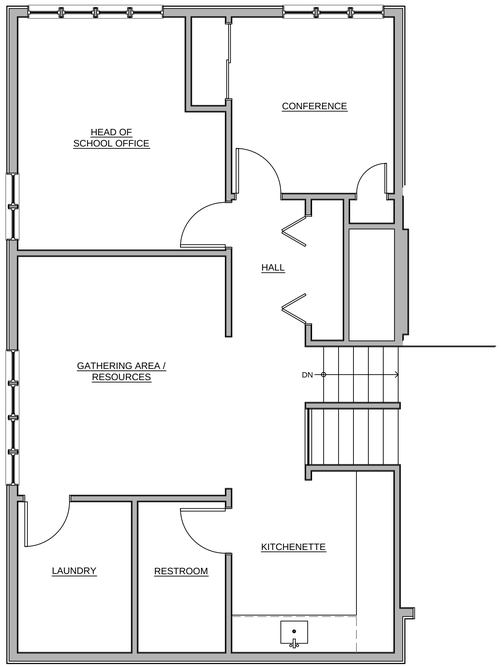
Russell Hamlet AIA
10583 Manitou Park Blvd NE
Bainbridge Island, Washington
206.842.7355
www.studiohamlet.com

MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

BUILDING 6

FUTURE UPPER ELEMENTARY CLASSROOM BUILDING ELEVATIONS

DATE: JUNE 15, 2016
SCALE: ¼"=1'-0"
DRAWN: RMB
JOB #: #1210
SHEET: A-6.3



2 EXISTING SCHOOL UPPER LEVEL

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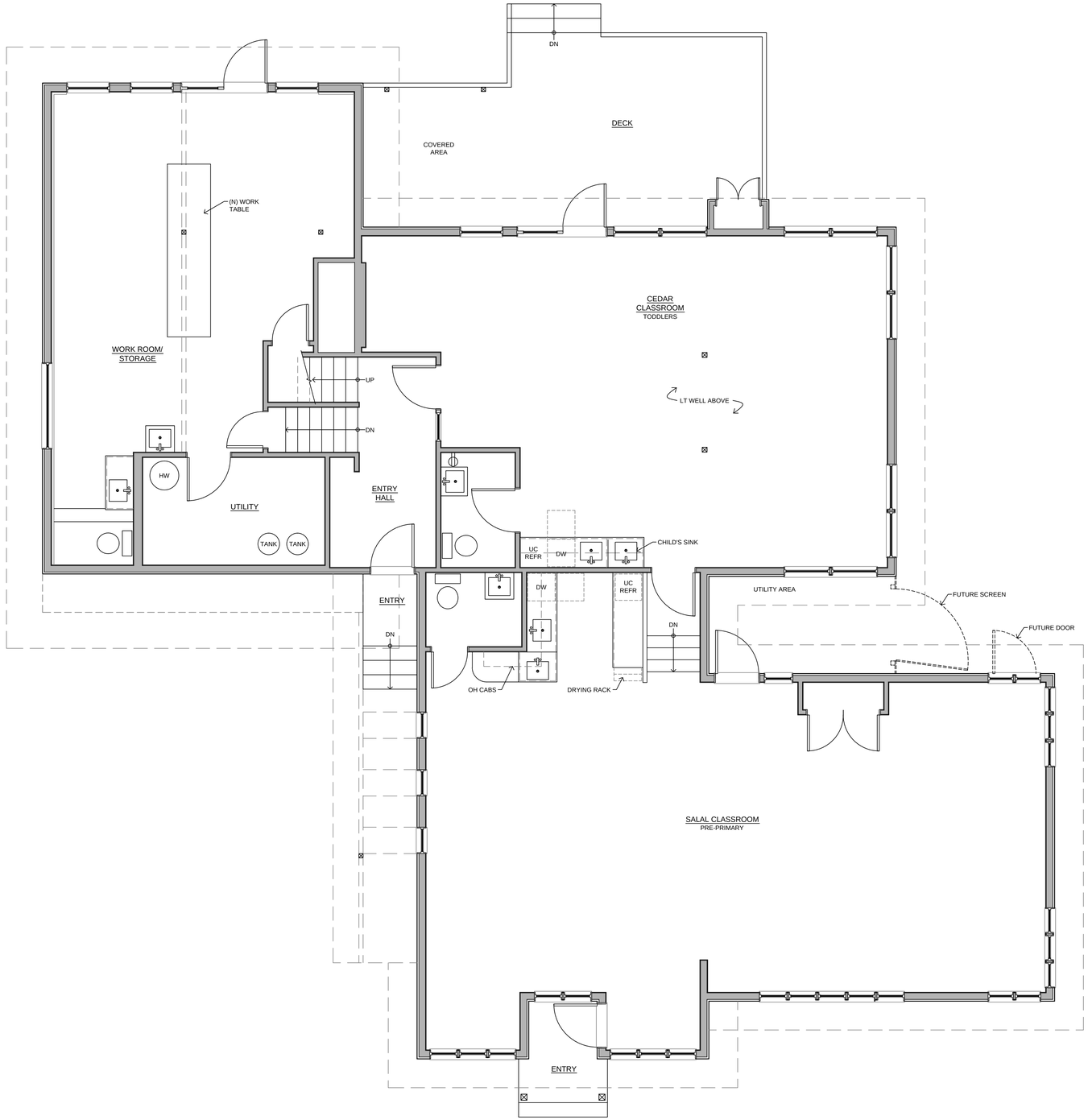

1 EXISTING SCHOOL FLOOR PLAN

SCALE: ¼"=1'-0"

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

EXISTING SCHOOL FLOOR PLAN

DATE:	JUNE 15, 2016
SCALE:	¼" = 1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	E-1.1

1 WEST ELEVATION

2 SOUTH ELEVATION

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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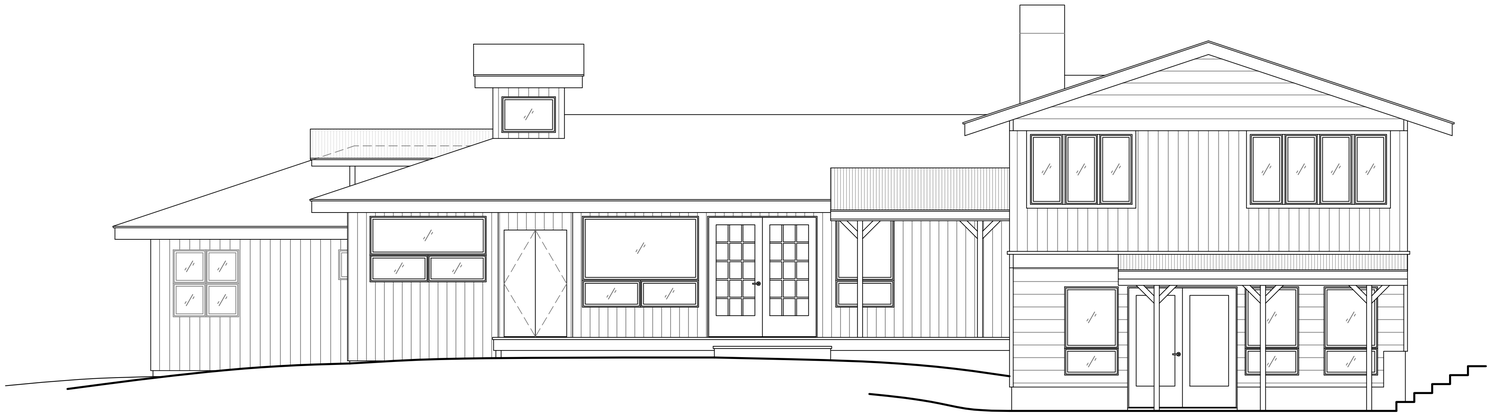
MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

EXISTING SCHOOL WEST & SOUTH ELEVATIONS

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	E-1.2



1 EAST ELEVATION

2 NORTH ELEVATION

0 1' 2' 4' 8'

DATE:	REVISIONS
10-6-15	PRE-APP SUBMITTAL
12-14-15	DRB PRE-APP SUBMITTAL
6-15-16	CUP/SPR SUBMITTAL

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MONTESSORI COUNTRY SCHOOL
10994 Arrow Point Drive NE
Bainbridge Island, WA

EXISTING SCHOOL EAST & NORTH ELEVATIONS

DATE:	JUNE 15, 2016
SCALE:	¼"=1'-0"
DRAWN:	RMB
JOB #:	#1210
SHEET:	E-1.3

BROWNE • WHEELER
ENGINEERS, INC

March 7, 2016

Montessori Country School
c/o Russ Hamlet
Studio Hamlet Architects
10583 Manitou Park Blvd NE
Bainbridge Island, WA 98110

City of Bainbridge Island
JUN 15 2016
Planning and
Community Development

Re: Montessori School SPDR & CUP

Dear Russ:

This letter presents our preliminary drainage, utility and driveway design for the proposed Montessori Country School (MCS) project Site Plan & Design Review and Conditional Use Permit Submittal. The proposed project includes the construction of five new buildings which will be include reception, offices and classrooms along Battle Point Park Drive on one 4.42-acre parcel.

EXISTING CONDITIONS

The site is located east of Arrow Point Drive, near the main entrance to Battle Point Park. The site is currently the location of the existing facility. The site has a looped gravel access with the entry located near the south corner of the property and the exit located approximately 65-ft to the north.

The soil, mapped by the United States Department of Agriculture, is Kapowsin gravelly ashy loam and Harstine gravelly ashy sandy loam. The site has a grade break running north-south approximately 125-feet into the property. The existing school building is located at the top of the grade break. The east basin (74% of the site) drains toward Manzanita Bay and the west basin (26% of the site) drains towards Battle Point Park (see Drainage Map).

The east basin is primarily wooded with native trees and shrubs. The east basin has about half of the existing school buildings rooftop draining in it and some playground area. Site slopes in the east basin range from gentle to moderate to steep continuing east toward Manzanita Bay.

The west basin slopes generally east to west at an average grade of 10%. The existing driveway and other half of the school building rooftop drain in an uncontrolled manner.

STORM DRAINAGE

Existing

Stormwater runoff from the site, in both basins, sheet flows in a dispersed manner primarily east and west. There is no existing stormwater infrastructure on-site.

Downstream System

East Basin

The east basin drains in a dispersed manner through dense native trees and brush toward Manzanita Bay. Approximately 600-ft from the existing school building to the east is the adjacent property line. A single family residence is located on the adjacent property which fronts Manzanita Bay. MCS has a storm drainage easement through this property to Manzanita Bay. This easement will not be utilized by the project. A curtain drain is located on the neighbor's property which appears to collect any uphill water and routes it to a 6-inch storm drain system. This system routes the water to the east and discharges into a landscape pond. The pond discharges into a vegetated swale that conveys the water to Manzanita Bay.

We observed no evidence of erosion in the channel or at the beach.

West Basin

Water that leaves the site along the west property line is collected in a shallow swale along Arrow Point Drive and conveyed to a catch basin between the two access points on the site. Water leaves the catch basin in a 12-inch corrugated metal pipe (CMP) that discharges on the west side of the road. The outlet of the culvert is lower than the grass swale it discharges to. It appears that tree roots have obstructed the swale and that the water would have to pond until it overtops and flows to the west. It appears that the swale would overtop just uphill of the maintenance yard at the park and flow to a catch basin in the asphalt. The outlet pipe from the catch basin appears to be 6-inch diameter.

This pipe continues west around the south side of the maintenance building and discharges to a grass swale. The swale is very flat, but flows south to a 12-inch CMP that conveys the water under the access road. The water then enters a seasonal pond at the southwest corner of the park. The outlet of the pond is a 10-inch CMP that is elevated from the bottom of the pond. At the discharge end of the 10-inch CMP it appears that the water has eroded some of the material.

Water continues to flow south in a grass swale until entering a 12-inch ADS pipe under the Forest to Sky trail. The water then enters a forested area where it appears to infiltrate. There were no signs of surface flow for several hundred feet. A channel reforms where multiple drainage basins intersect just north of Tolo Road. The water then enters a 12-inch CMP that conveys the water under the access road and discharges into a channel about 2-feet wide.

This channel continues south until reaching Tolo Road. At this point the water in the channel flows into a 12-inch reinforced concrete pipe (RCP) that conveys the water under Tolo Road. The channel downstream of this point appears to be stable. The channel continues south until reaching Battle Point Drive. At this point the water enters a 24-inch RCP that conveys the water under the road and into Fletcher Bay.

There are isolated signs of erosion, but it appears that the major issue along the flow path is lack of an adequate conveyance system at Arrow Point Drive and the obstructed outlets at a few of the culvert outlets.

Proposed

The proposed project consists of constructing five new buildings with a total roof area of 11,810-square feet, pathways, parking areas and associated storm drainage and utility facilities.

Threshold Determination

In the east basin we are planning on utilizing a combination of detention/dispersion system that meets the requirements for full dispersion. This allows the impervious area to be considered as fully mitigated and is not included in the threshold determination. We are disturbing over 7,000 square feet of soil. Because of this we are required to meet minimum requirements 1-5. Table 1 describes how each of the minimum requirements are met

The west basin will create over 5,000 square feet of new impervious area. Because of this the new impervious and converted pervious surfaces will need to meet Minimum Requirements 1-10. Table 2 describes how each of Minimum Requirements will be met.

Stormwater System

East Basin

The new rooftop area will be routed to a detention system that will reduce the peak flow to be similar to that of 14,000-square feet of roof area. The tanks will discharge to four 50-foot long dispersion trenches that are capable of handling 14,000 square feet (4 times 3,500-square feet) of roof area. The trenches will be placed in a forested area and will have over 100-feet of flow path before leaving the site. We also evaluated the drainage basin to ensure that it meet the percent impervious and forested area criteria. The project will have less than 10% impervious area and over 75% forested area.

West Basin

The parking area will be graded to drain runoff to a series of catch basins. The catch basins will discharge to storm drain pipes that will convey the water to a Stormfilter cartridge filter system or to a small rain garden. The Stormfilter will remove pollutants from the stormwater before it is conveyed to a detention tank. The rain garden will remove pollutants in the engineered soil mix before the water is infiltrated into the underlying soil. Because of limited soil information and setback requirements there are limited areas available to confidently infiltrate so the size of the rain garden is limited.

The detention tank was designed to reduce the flow from the developed site to meet the City's duration flow standard. The because of the elevation of the drainage system along Arrow Point Drive the size of the tanks used in the detention system were limited to 4-foot diameter CMP. The tanks will discharge to the existing catch basin on the east side of Arrow Point Drive.

ON-SITE UTILITIES

WATER

Existing

An existing public well provides water to the existing facility.

Proposed

A new tank house will be provided to house additional water storage facilities required to serve the increased demand.

SANITARY SEWER

Existing

The facility is currently served by a drainfield located southeast of the building.

Proposed

A new onsite septic system will be installed to treat the additional load from the proposed project.

Power, telephone, and television cable will be designed by others.

SITE ACCESS

Existing

The site is currently accessed by a one-way loop road with associated parking. The traffic movement is entry from the south and exit at the north.

Proposed

A new gravel access driveway and parking area will be constructed to provide additional parking. The access will be one-way, entering at the south and exiting at the north.

FRONTAGE IMPROVEMENTS

Existing

The existing lane width along the frontage is 10-feet. A portion of the frontage, between the two existing access points has a gravel shoulder approximately 10-feet wide. North of this there is no gravel shoulder.

Proposed

The proposed frontage improvements, for the length of the property frontage, is to provide a 4 foot gravel shoulder with a drainage ditch.

EROSION CONTROL

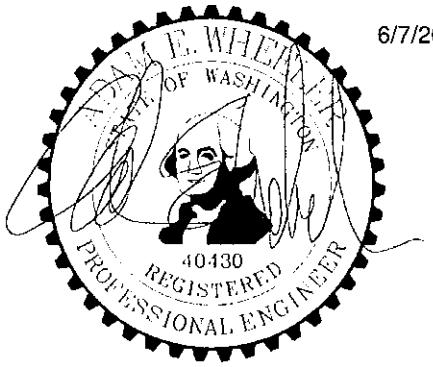
The Contractor will be responsible for maintaining erosion control facilities on the site during construction and for ensuring that sediment does not leave the site. The general principles of construction pollution prevention are:

- Retain native vegetation
- Prevent erosion rather than treat sediment laden water
- Employ site specific best management practices (BMPs)
- Divert upslope runoff around disturbed area
- Phase construction operations to reduce total amount of disturbance at one time
- Amend soils before seeding
- Minimize the slope length and steepness of disturbed areas
- Reduce runoff velocities
- Prevent the tracking of sediment off site
- Employ BMPs that address not only erosion but also other potential pollutants.

A detailed erosion and sediment control plan will be developed during final design.

Very truly yours,

BROWNE WHEELER ENGINEERS, INC.



6/7/2015

Table 1

(East Basin)

Summary of Stormwater Minimum Requirements

Minimum Requirement	Comment
1. Stormwater site plan	A stormwater site plan is presented.
2. Construction stormwater pollution prevention	A detailed construction stormwater pollution prevention plan will be developed during final design.
3. Source control of pollutants	Not applicable.
4. Preservation of natural drainage systems and outfalls	All stormwater will continue to discharge in the same location and in the same manner.
5. On-site stormwater management	Stormwater is proposed to be kept on-site to the maximum extent practicable through the amendment of all landscaping areas and use of full dispersion.
6. Runoff treatment	Not applicable
7. Flow control	Not applicable
8. Wetlands protection	Not applicable.
9. Basin and watershed planning	Not applicable.
10. Operation and maintenance	An operation and maintenance manual will be developed during final design.

Table 2

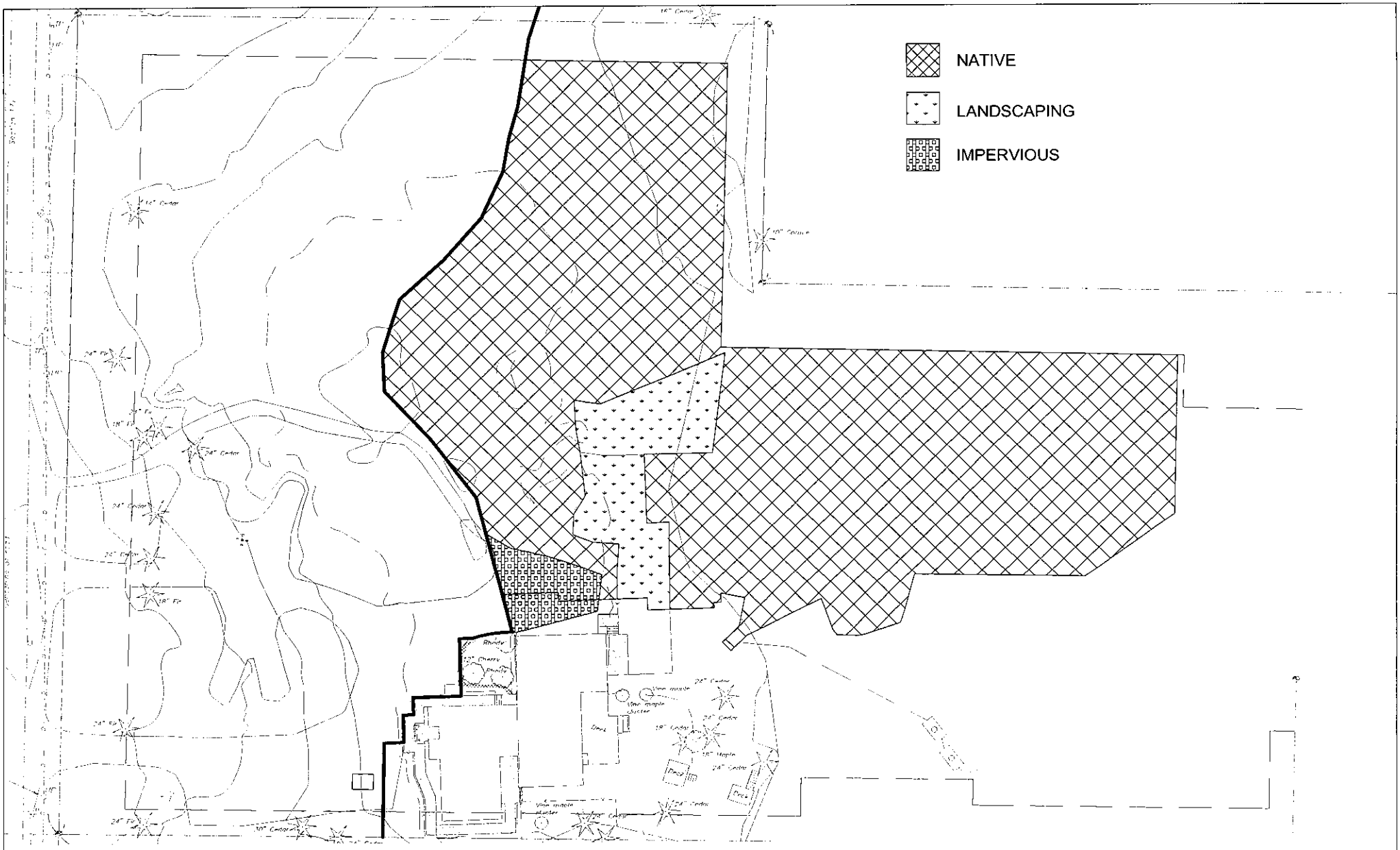
(West Basin)

Summary of Stormwater Minimum Requirements

Minimum Requirement	Comment
1. Stormwater site plan	A stormwater site plan is presented.
2. Construction stormwater pollution prevention	A detailed construction stormwater pollution prevention plan will be developed during final design.
3. Source control of pollutants	Not applicable.
4. Preservation of natural drainage systems and outfalls	All stormwater will continue to discharge to the catch basin located along Arrow Point Drive.
5. On-site stormwater management	Stormwater is proposed to be kept on-site to the maximum extent practicable through the amendment of all landscaping areas and use of a rain garden.
6. Runoff treatment	Treatment will be provided by a rain garden and a Stormfilter cartridge filter
7. Flow control	The detention system is designed to meet the flow control requirements
8. Wetlands protection	See 6 and 7.
9. Basin and watershed planning	Not applicable.
10. Operation and maintenance	An operation and maintenance manual will be developed during final design.

ENGINEERING CALCULATIONS

East Drainage Basin



N

EAST BASIN EXISTING CONDITIONS

SCALE: 1" = 50'

0 10 25 50 100

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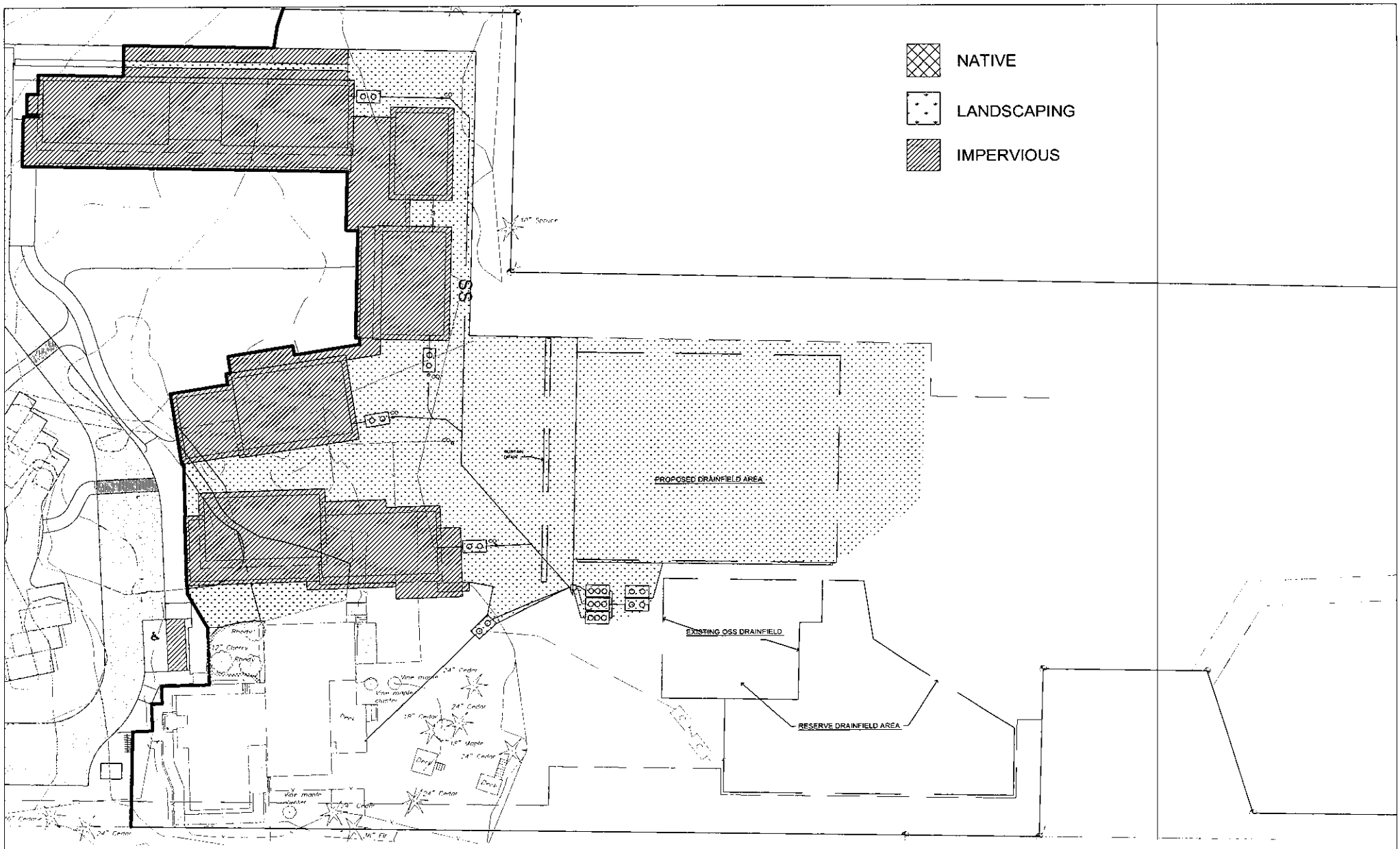
P 206.842.0605 INFO@BrowneWheeler.COM



N

EAST DRAINAGE BASIN

SCALE: 1" = 50'

0 10 25 50 100

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Montessori Country School
East Basin
6/7/2016

Existing

Total	36975		0.849
Forest	33157	sf	0.761
Landscaping	2857	sf	0.066
Removed Imperious	349	sf	0.008
Replaced Impervious	612	sf	0.014

Proposed

Total		36,966		0.330
Forest		-	sf	0.000
Landscaping		21,845	sf	0.501
Removed Imp to Land		759	sf	0.017
Impervious				
	Patio	1,054	sf	0.024
	Building	11,762	sf	0.270
	Replaced Impervious	737	sf	0.017
	Fire Access	809	sf	0.019

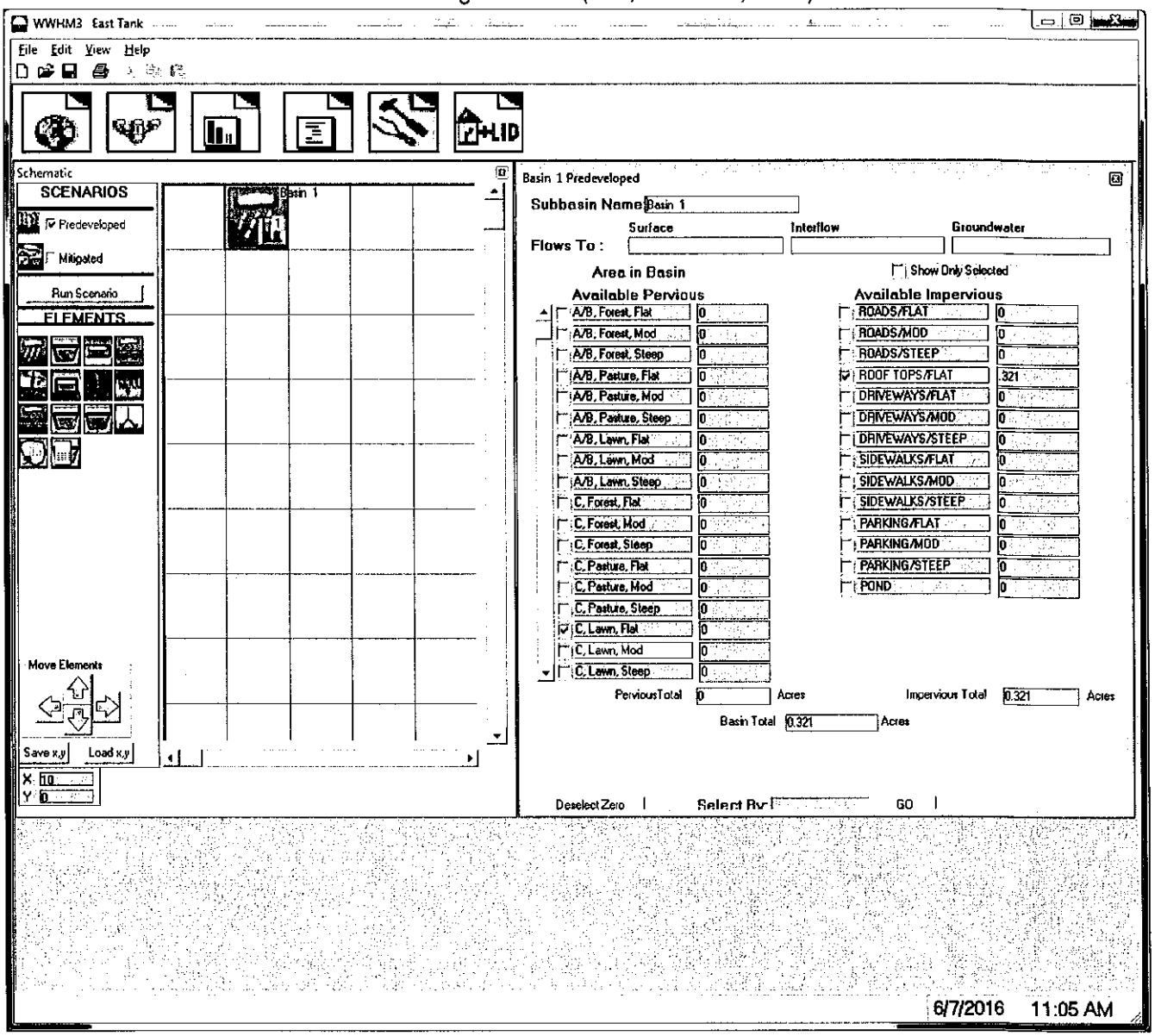
Full Dispersion Criteria

Total	146,293	sf
Forest	109,327	sf
% Forest	74.7	
Impervious	14,362	sf
% Imp	9.8	

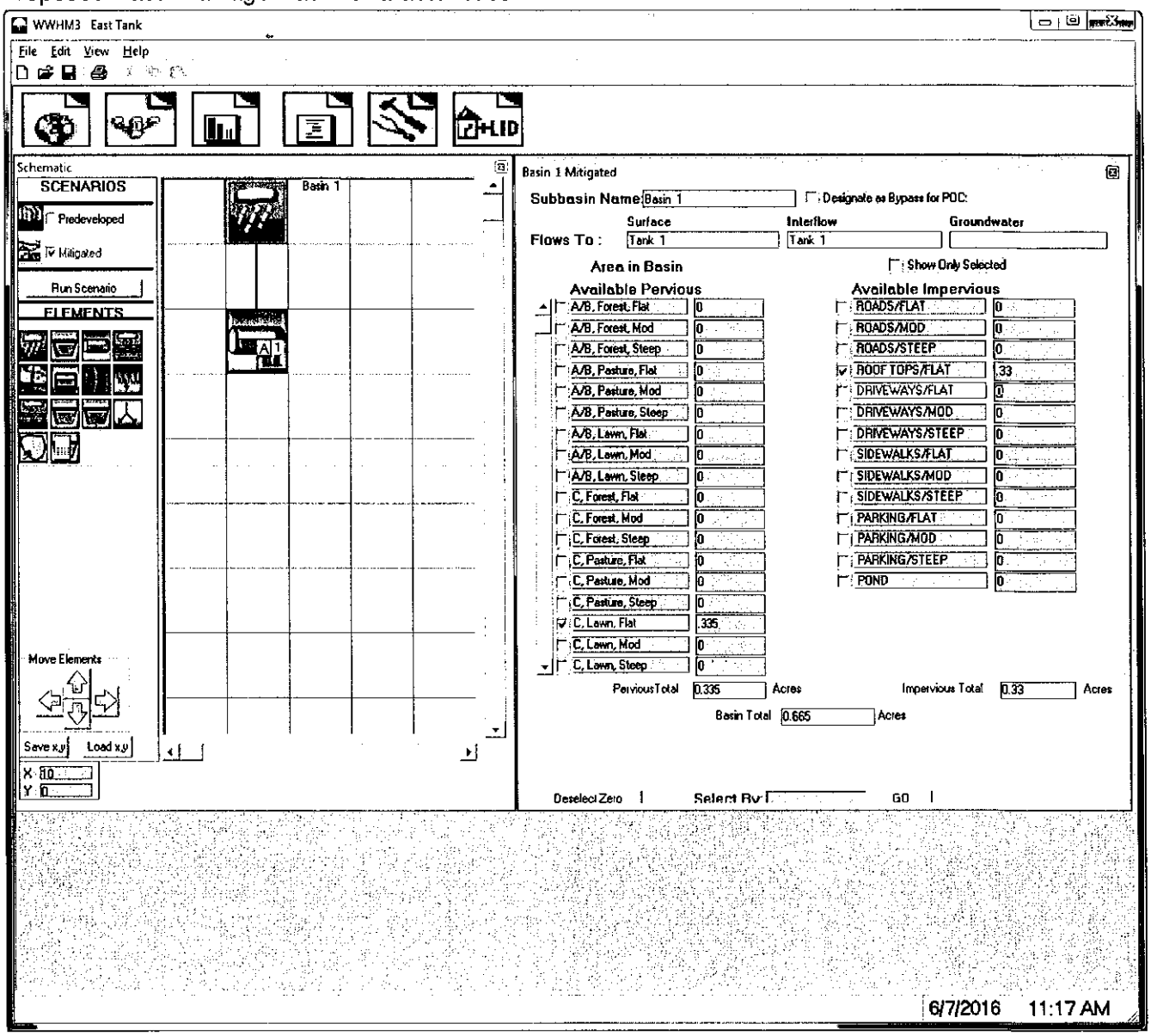
The State manual allows projects to mitigate stormwater impacts using full dispersion. Full dispersion relies on spreading the runoff into area of established vegetation with dispersion trenches. There are criteria in the manual regarding placement of the trenches and how much area can flow to each trench. Based on this criterion we can place 4 trenches on the site. The amount of area that can flow to each trench is 3,500 square feet of impervious area. The total impervious area that can be mitigated without detention is 14,000 square feet.

We are proposing to route 14,362 square feet of impervious area and 14,604 square feet of pervious area to the dispersion trenches. To not overwhelm the trenches we are proposing to construct a detention tank that will reduce the flows from these areas to match the flow durations from that the trenches are sized for (14,000 square feet of impervious area). Below is the model of this system.

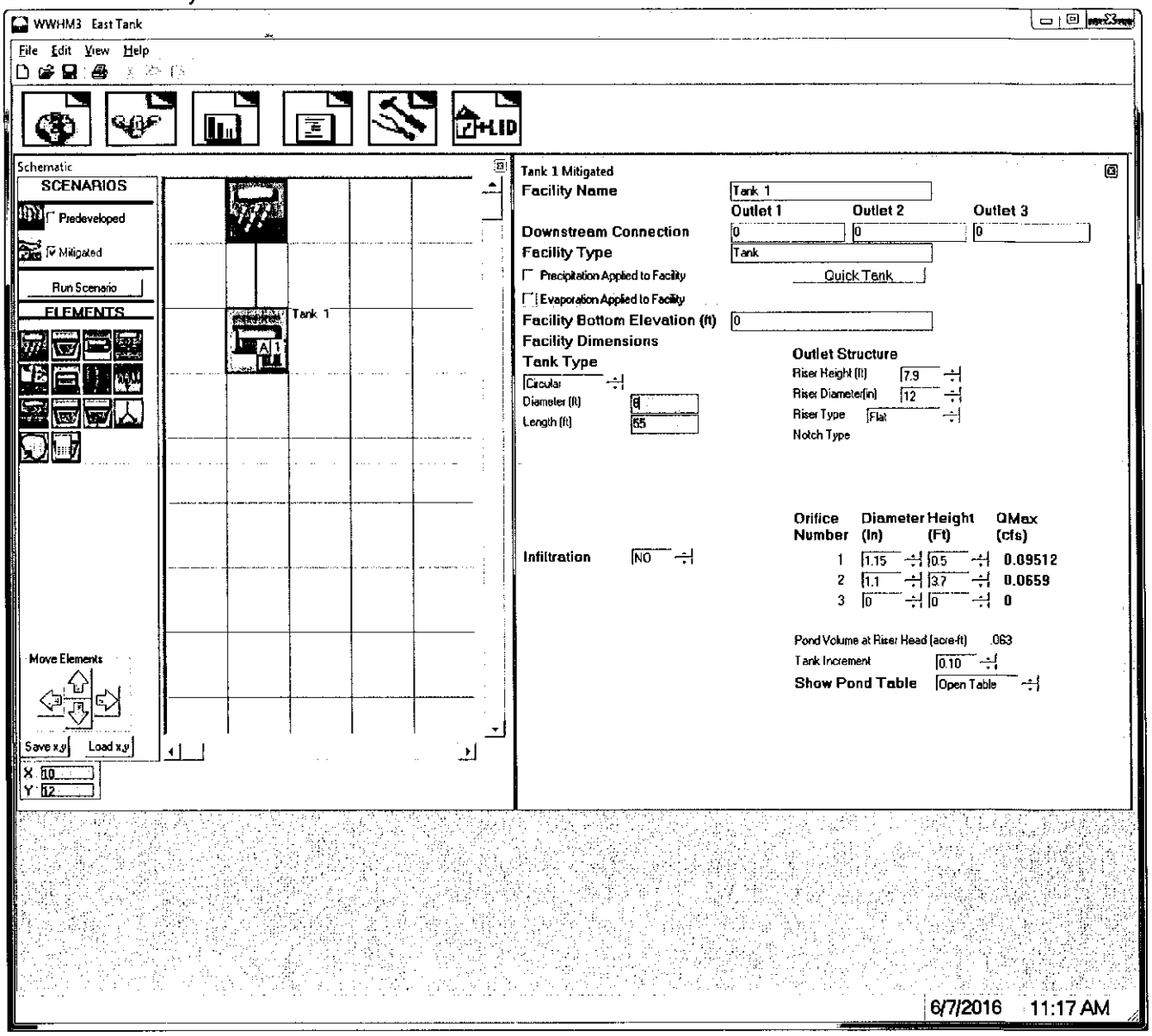
Basin Characteristics with four 50 foot long trenches (4x3,500sf=14,000sf)



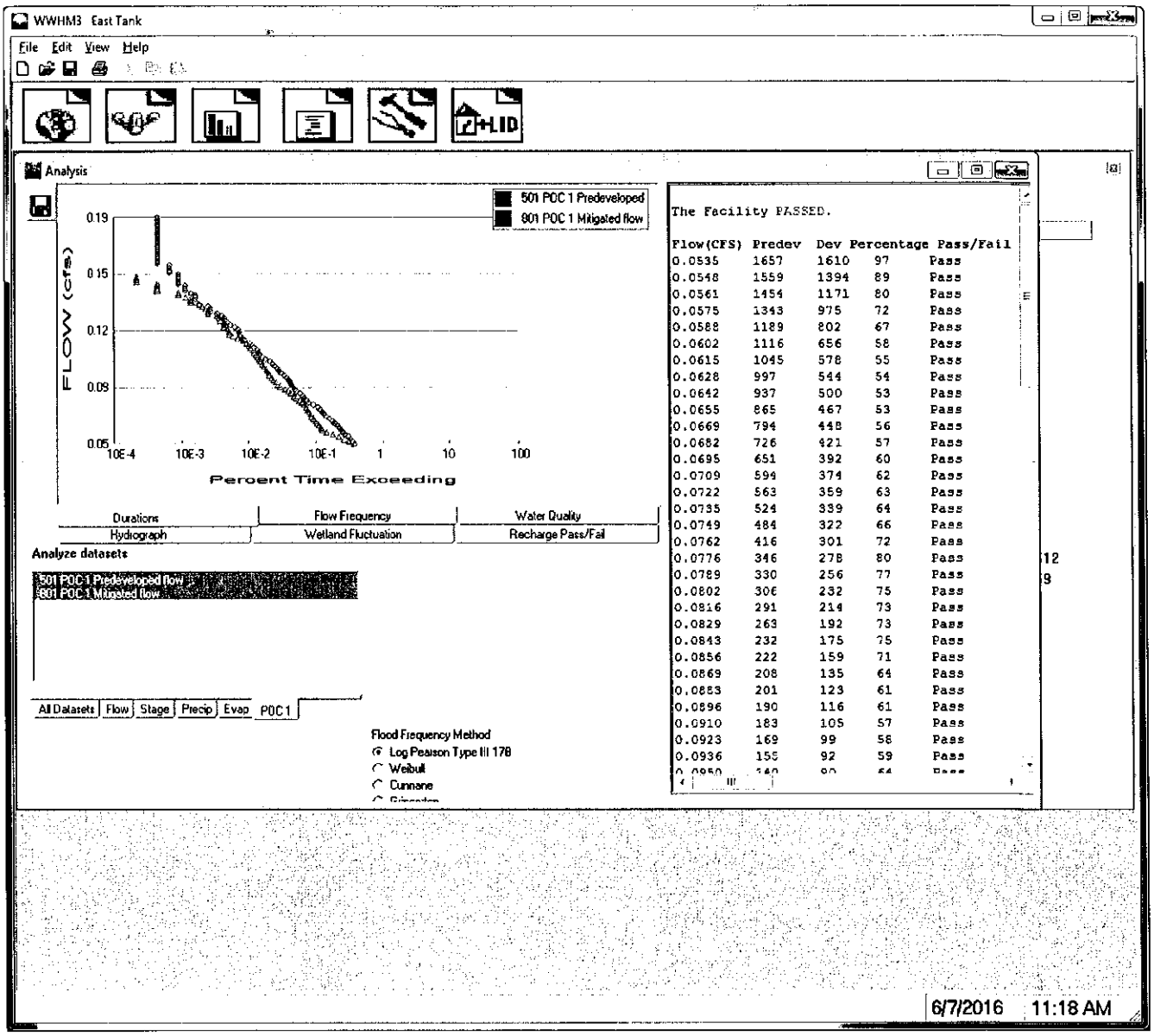
Proposed East Drainage Basin Characteristics



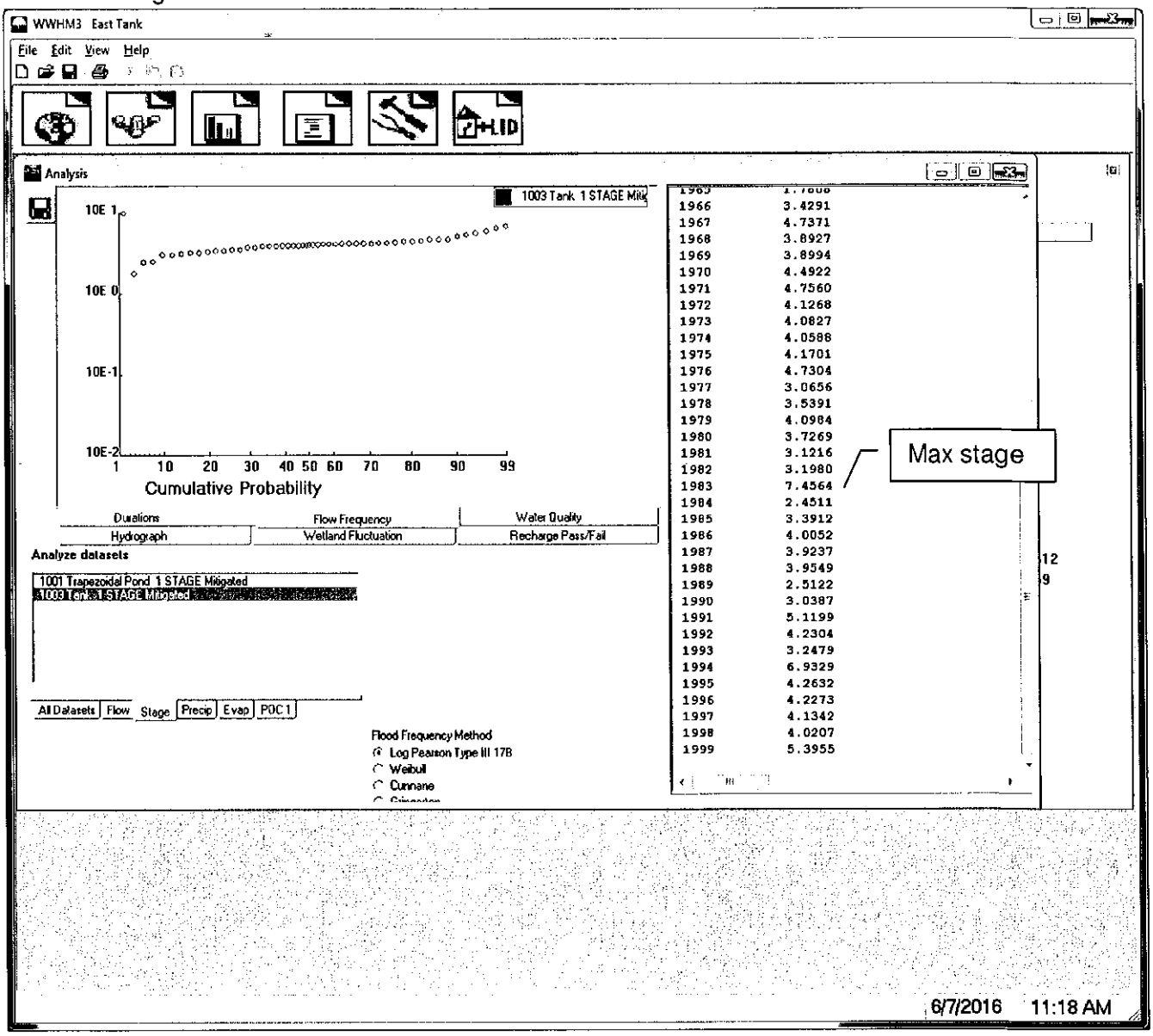
East Detention System Dimensions



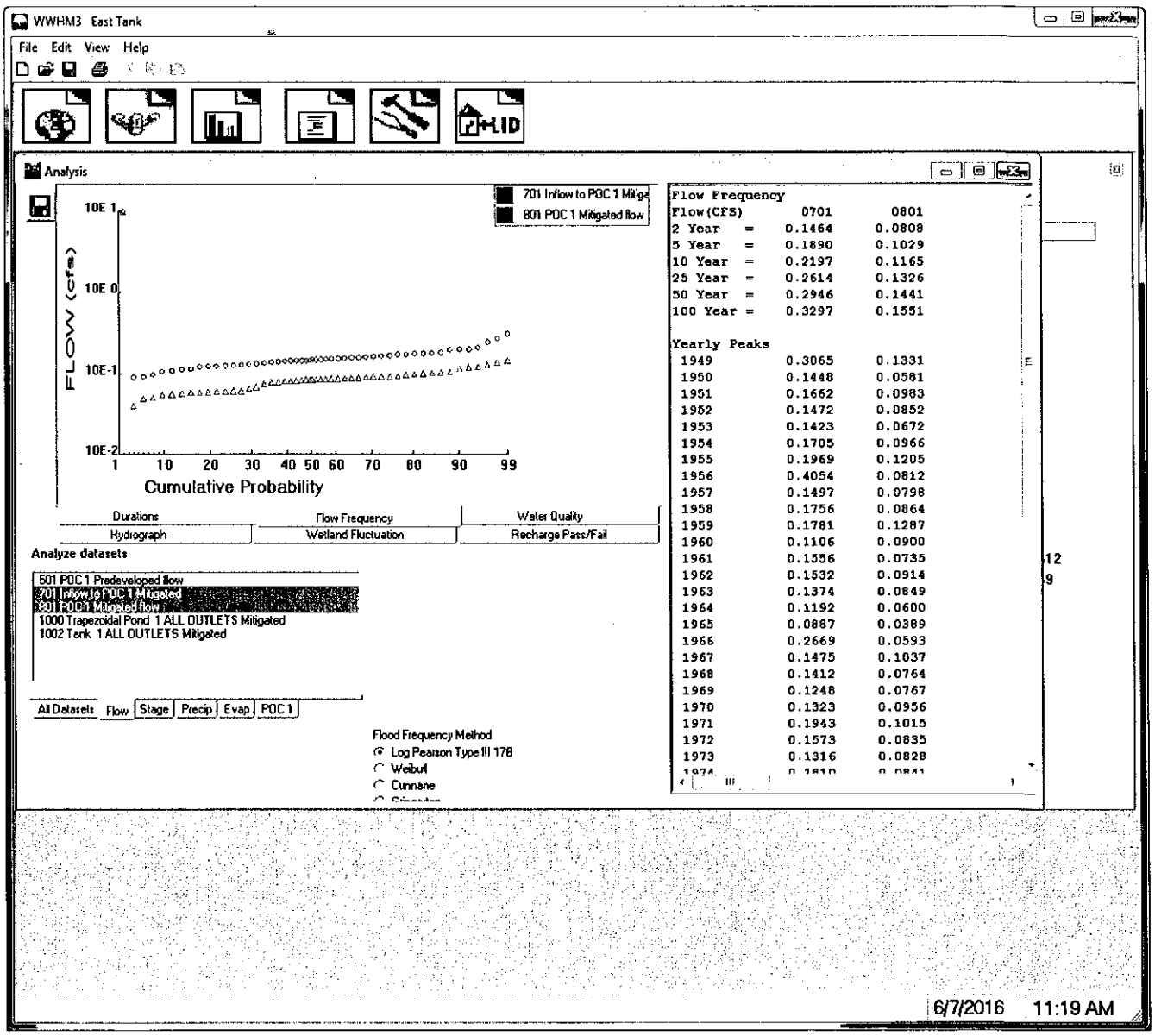
East Detention Tank Duration Performance



Maximum Stage In East Detention Tank



Modeled flows, into and out of East Detention Tank



West Drainage Basin

N

WEST BASIN EXISTING CONDITIONS

SCALE: 1" = 50'

0 10 25 50 100

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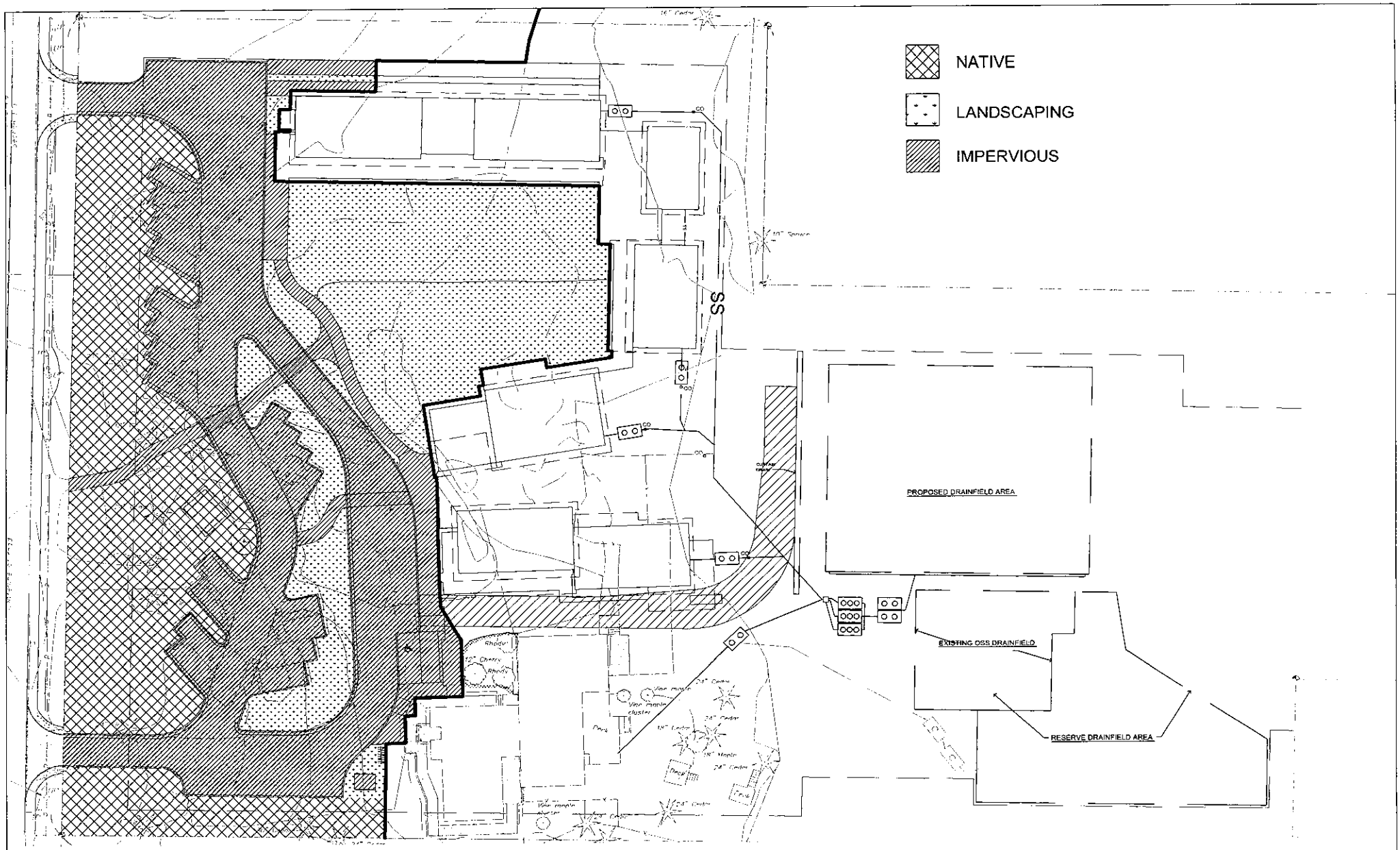
P 206.842.0605 INFO@BrowneWheeler.COM



N

WEST DRAINAGE BASIN

SCALE: 1" = 50'

0 10 25 50 100

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Montessori Country School
West Basin
6/7/2016

Existing

Total		43387 sf	0.996 ac
Forest		33651 sf	0.773 ac
Landscaping		sf	0.000 ac
Removed Imperious		3170 sf	0.073 ac
Replaced Impervious		6575 sf	0.151 ac

Proposed

Total		43360 sf	0.995 ac
Forest		12693 sf	0.291 ac
Landscaping		11539 sf	0.265 ac
Removed Imp to Land		668 sf	0.015 ac
Impervious			
	Patio	1362 sf	0.031 ac
	Building	48 sf	0.001 ac
	Replaced Impervious	6236 sf	0.143 ac
	Fire Access	411 sf	0.009 ac
	Road and Parking	10403 sf	0.239 ac

Montesorri Country School
West Basin
Mitigation Areas
6/7/2016

Northwest RG

Impervious	917 sf	0.021 ac
Pervious	325 sf	0.007 ac

Detention Tank

Impervious	12967 sf	0.298 ac
Landscaping	11301 sf	0.259 ac

Bypass

Impervious	4576 sf	0.105 ac
Landscaping	906 sf	0.021 ac
Forest	12368 sf	0.284 ac

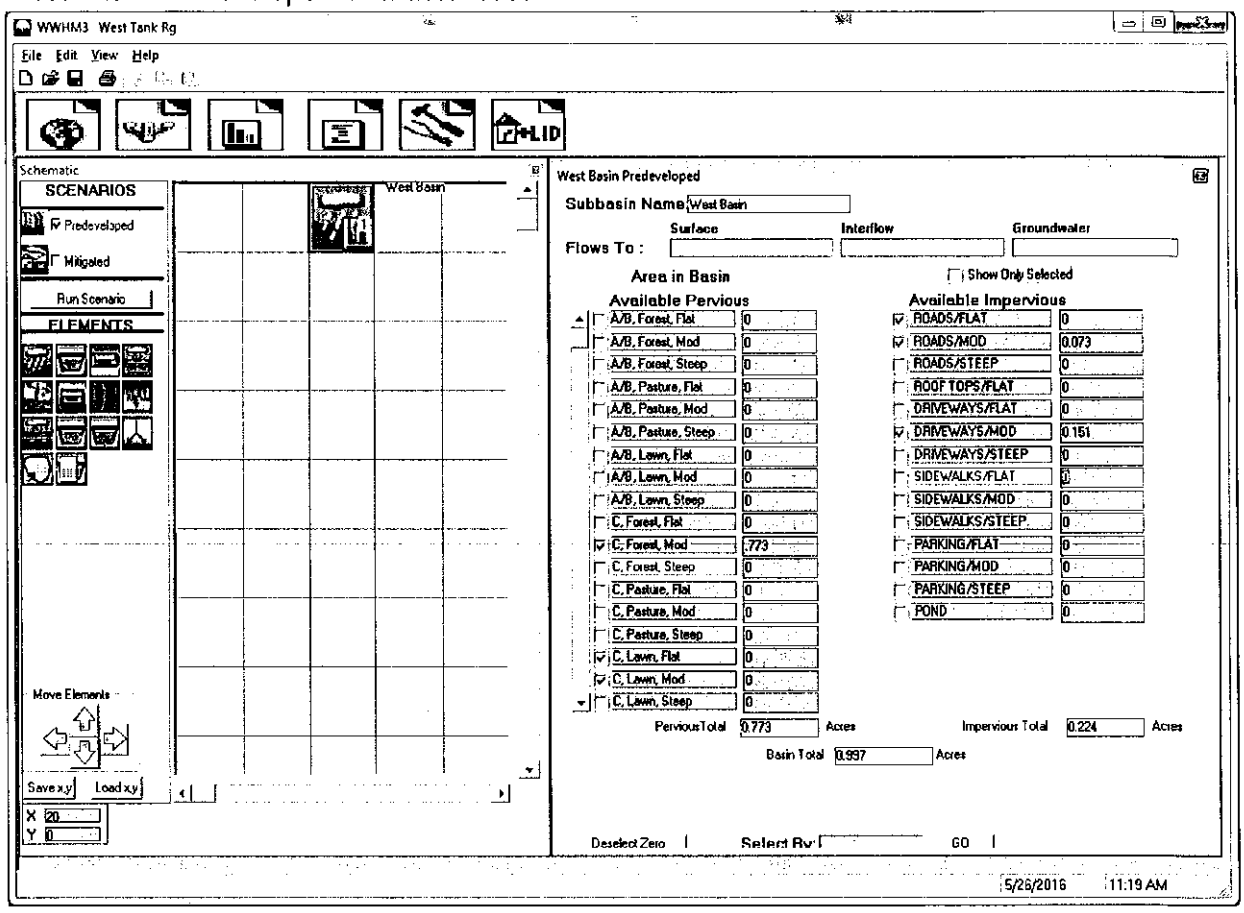
Montesorri Country School
West Basin
Stormfilter Szing
6/7/2016

Basin Area

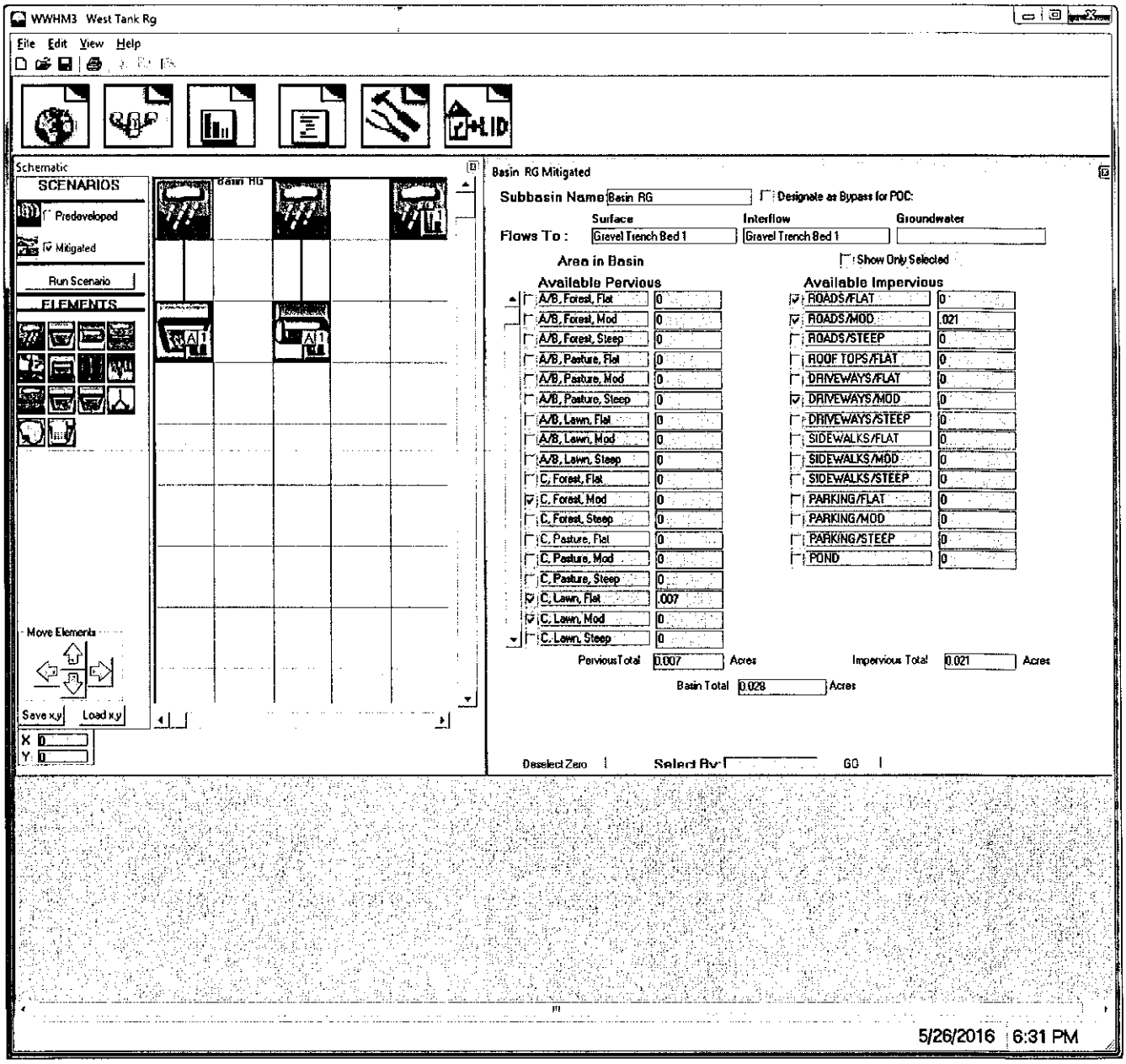
Impervious	12430 sf	0.285354 ac
Landscaping	1793 sf	0.041162 ac

Qwq	0.0718 cfs		32.2 gpm
Filter flow rate	7.5		
# of Cartridges	4.3	——>	5

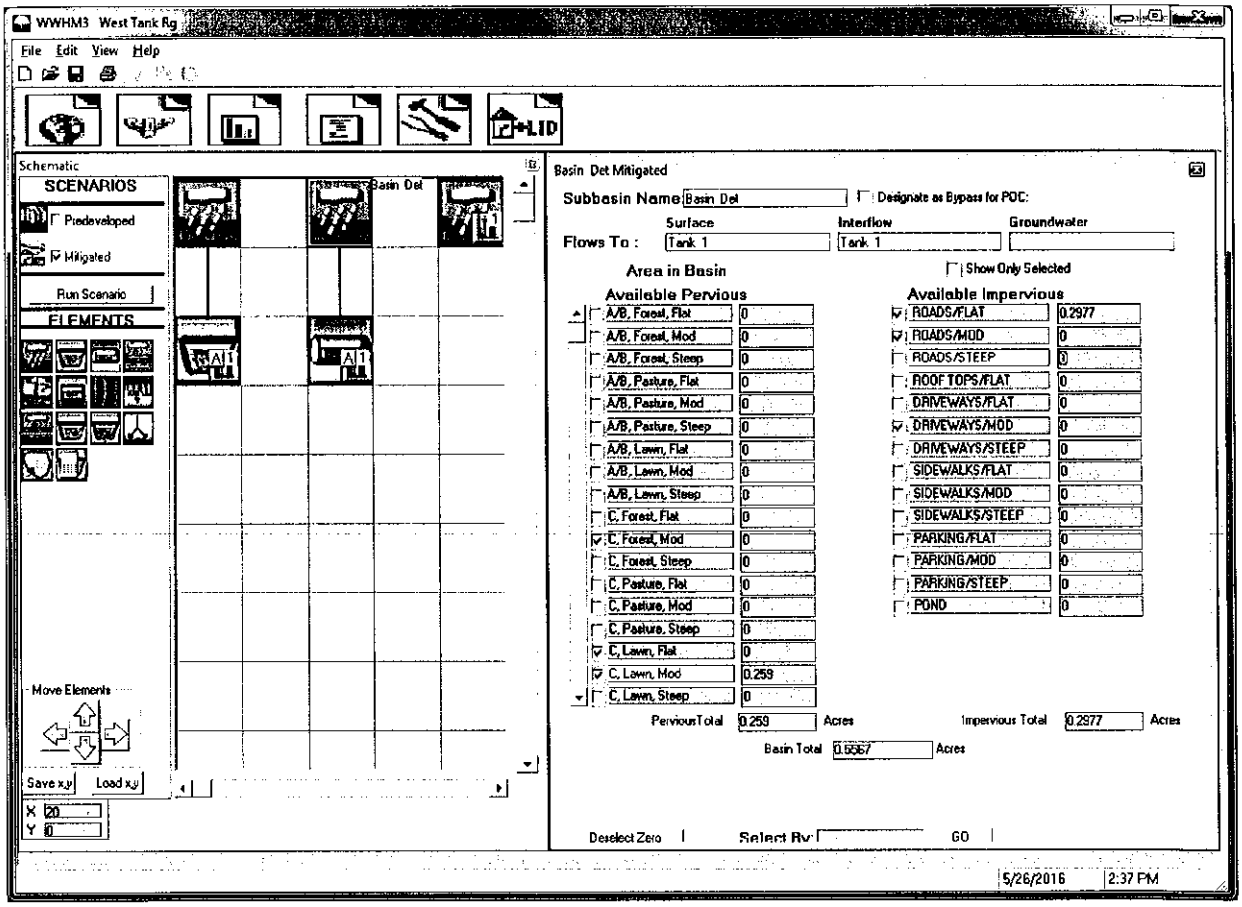
West Basin Predeveloped Characteristics



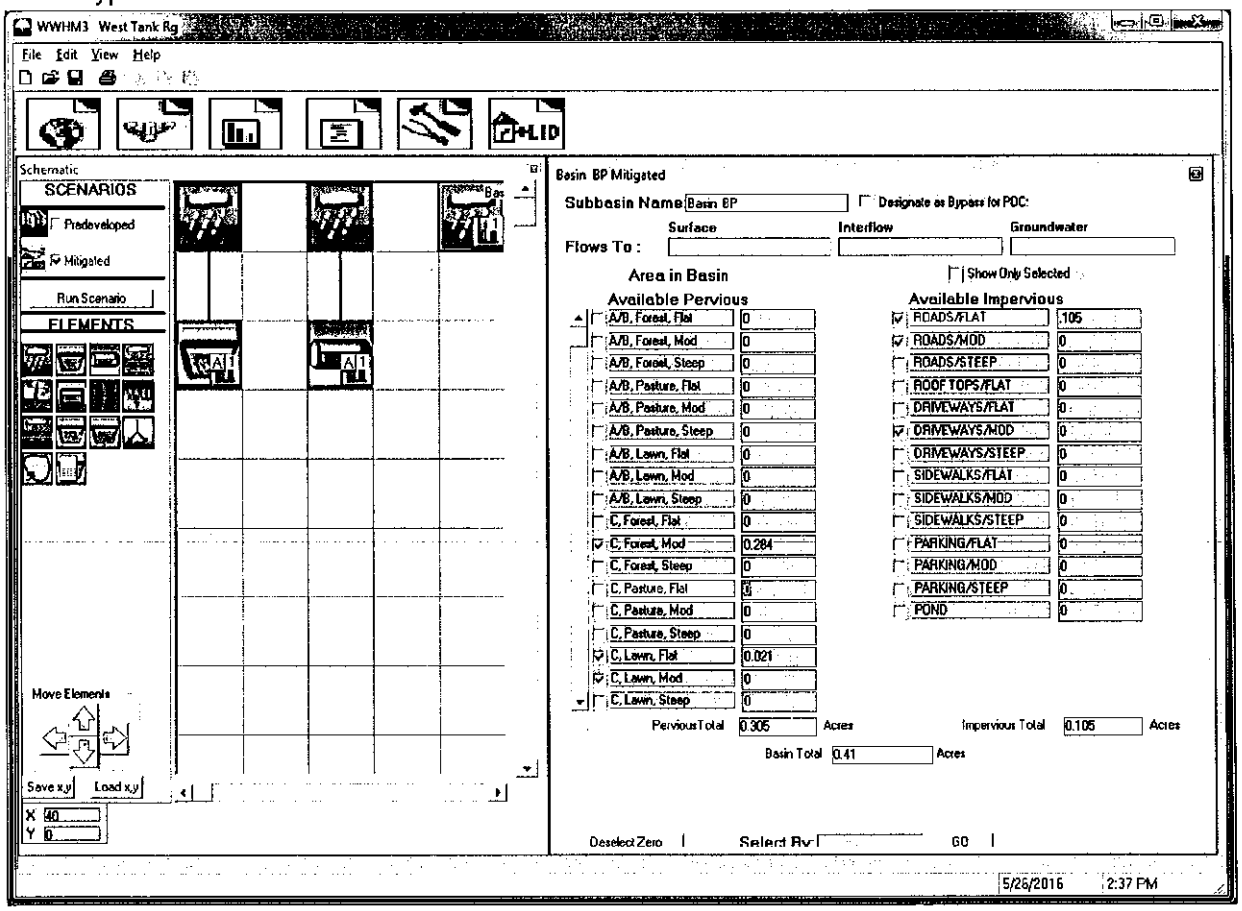
West Rain Garden Basin Characteristics



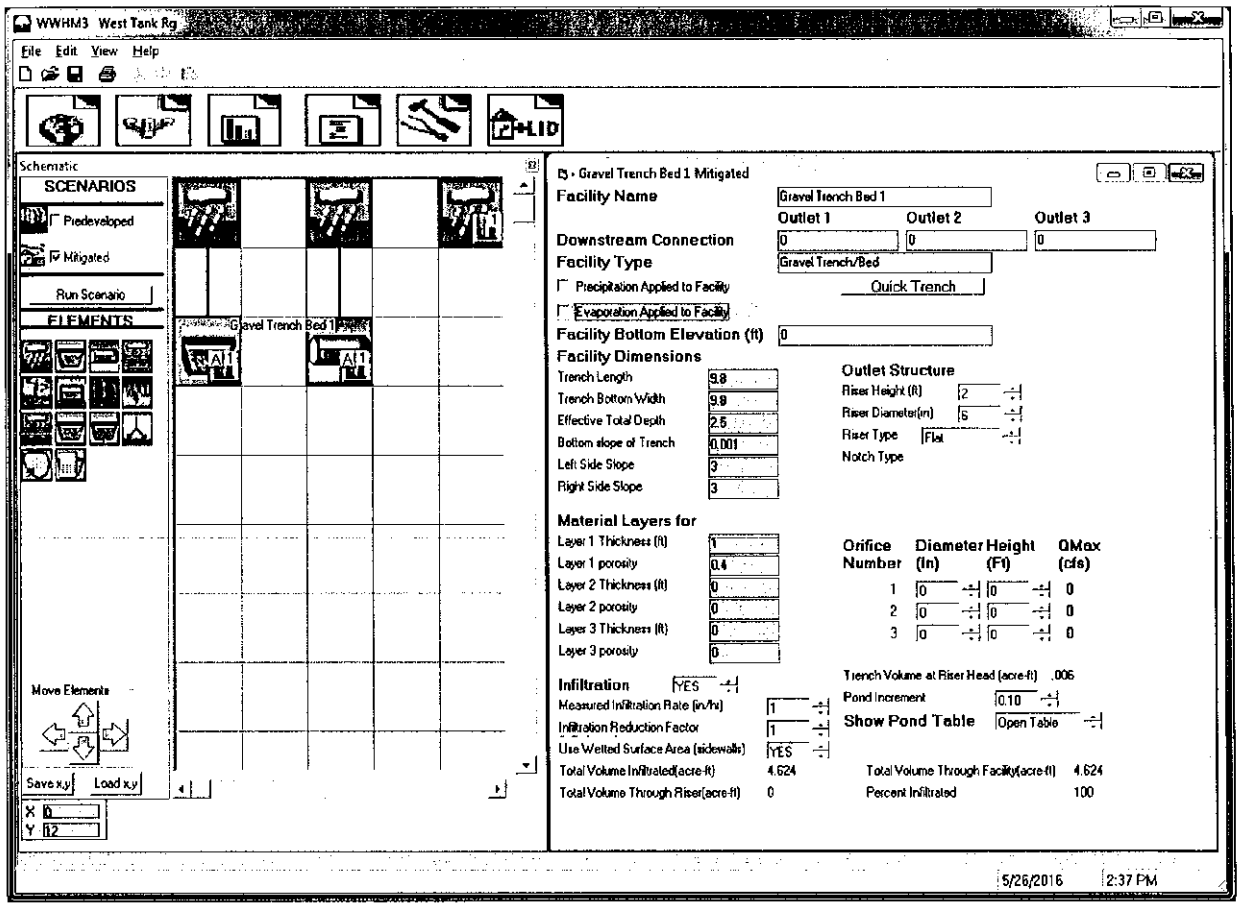
West Detention Tank Basin Characteristics



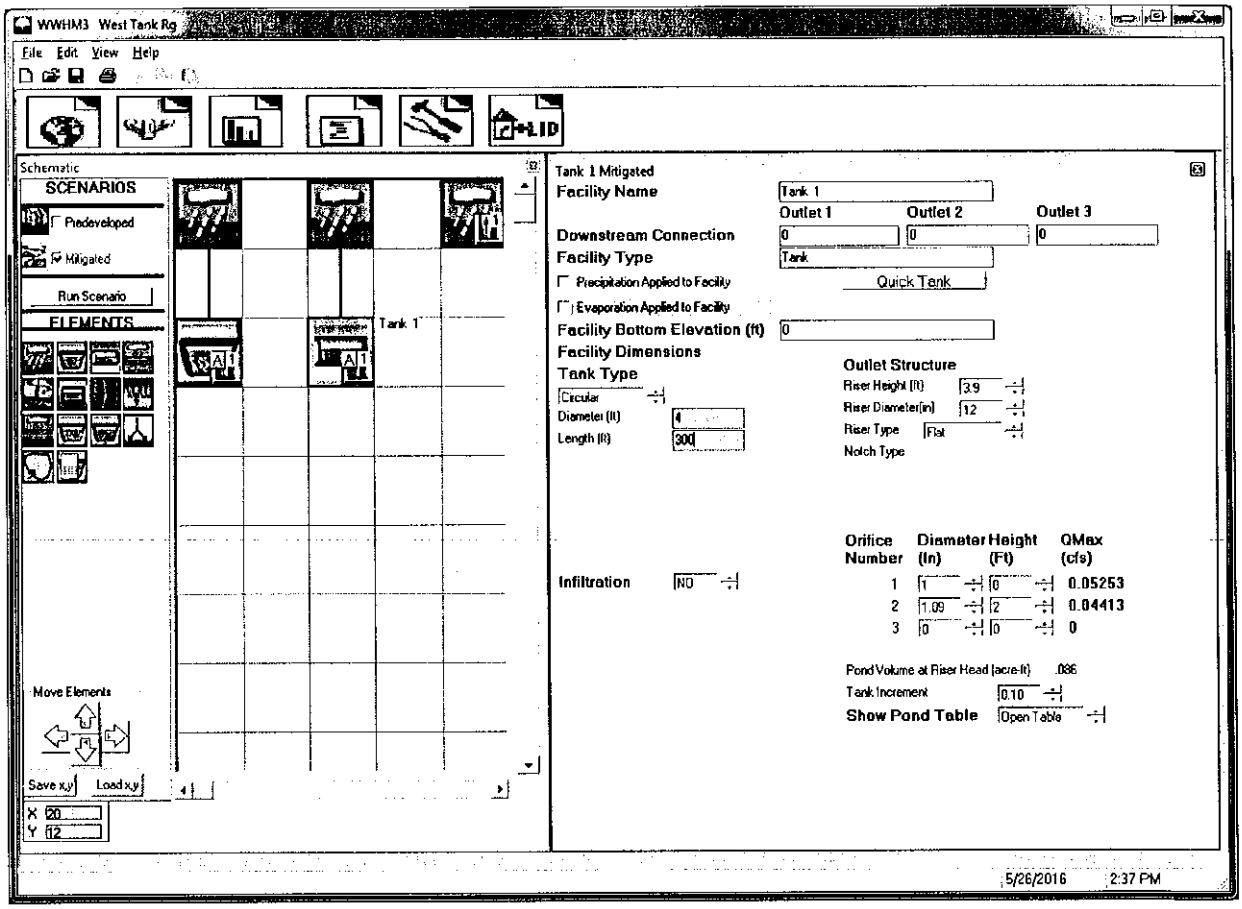
West Bypass Basin Characteristics



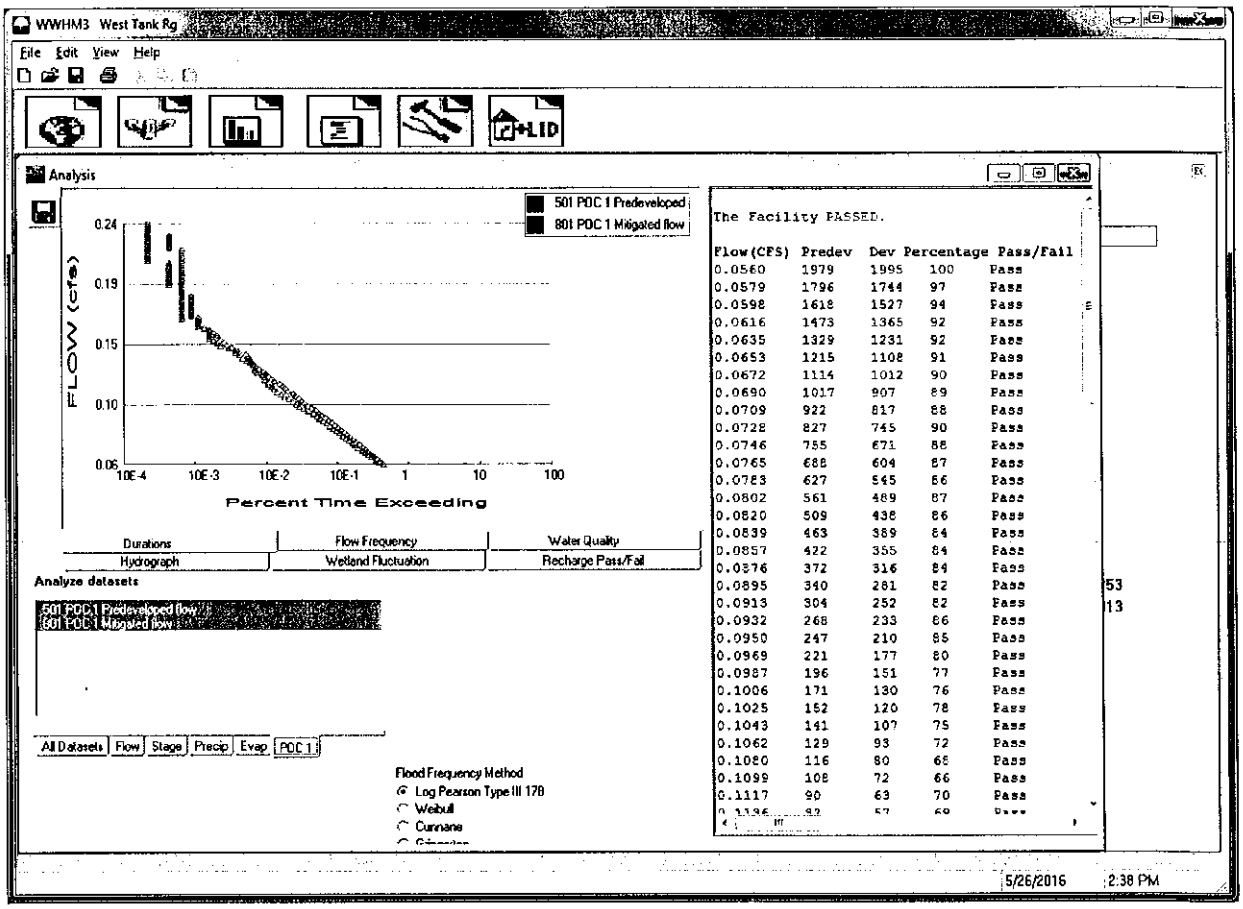
West Rain Garden Dimensions and Performance



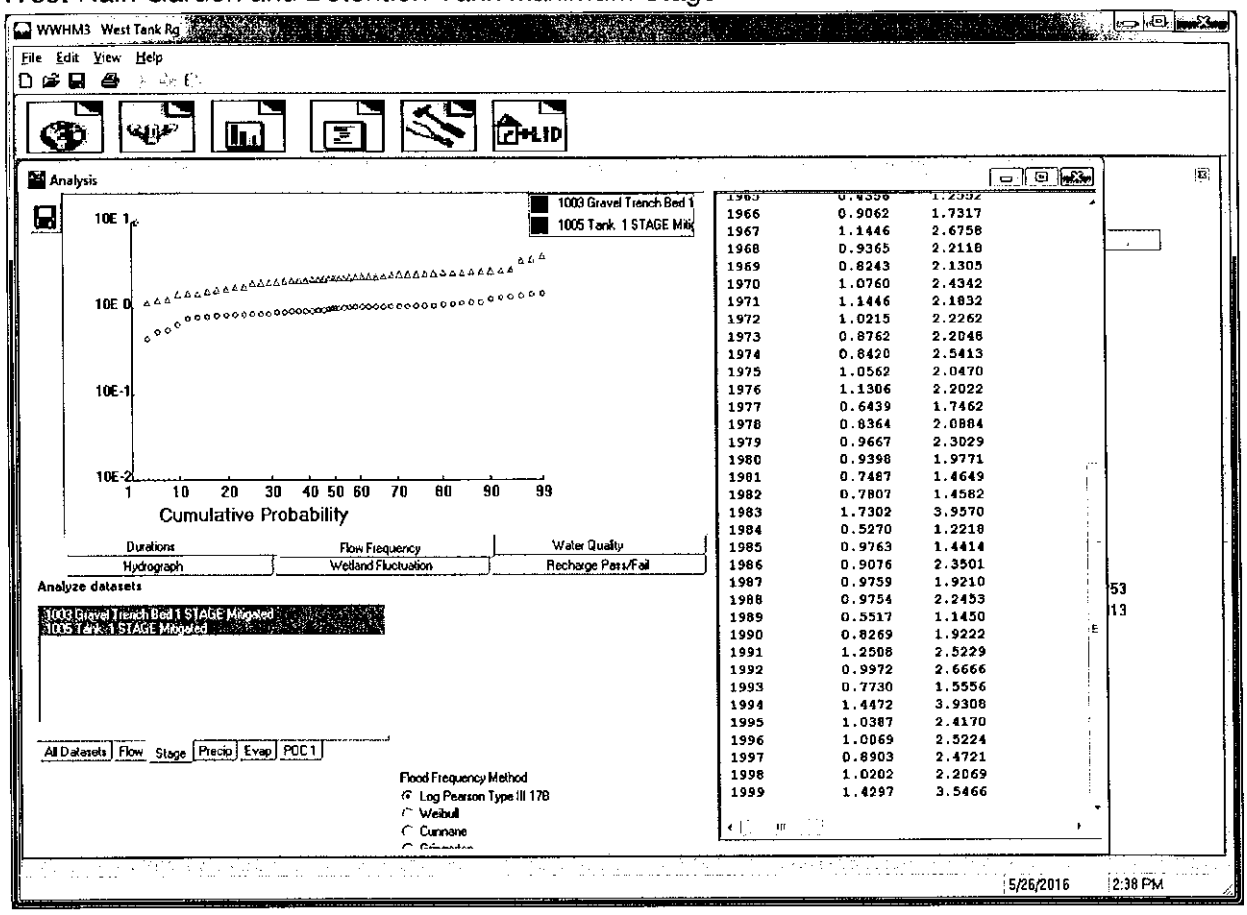
West Detention Tank Dimensions



West Basin Duration Performance



West Rain Garden and Detention Tank Maximum Stage



Transmittal

City of Bainbridge Island

SEP 22 2016

Planning and Community Development

September 22, 2016

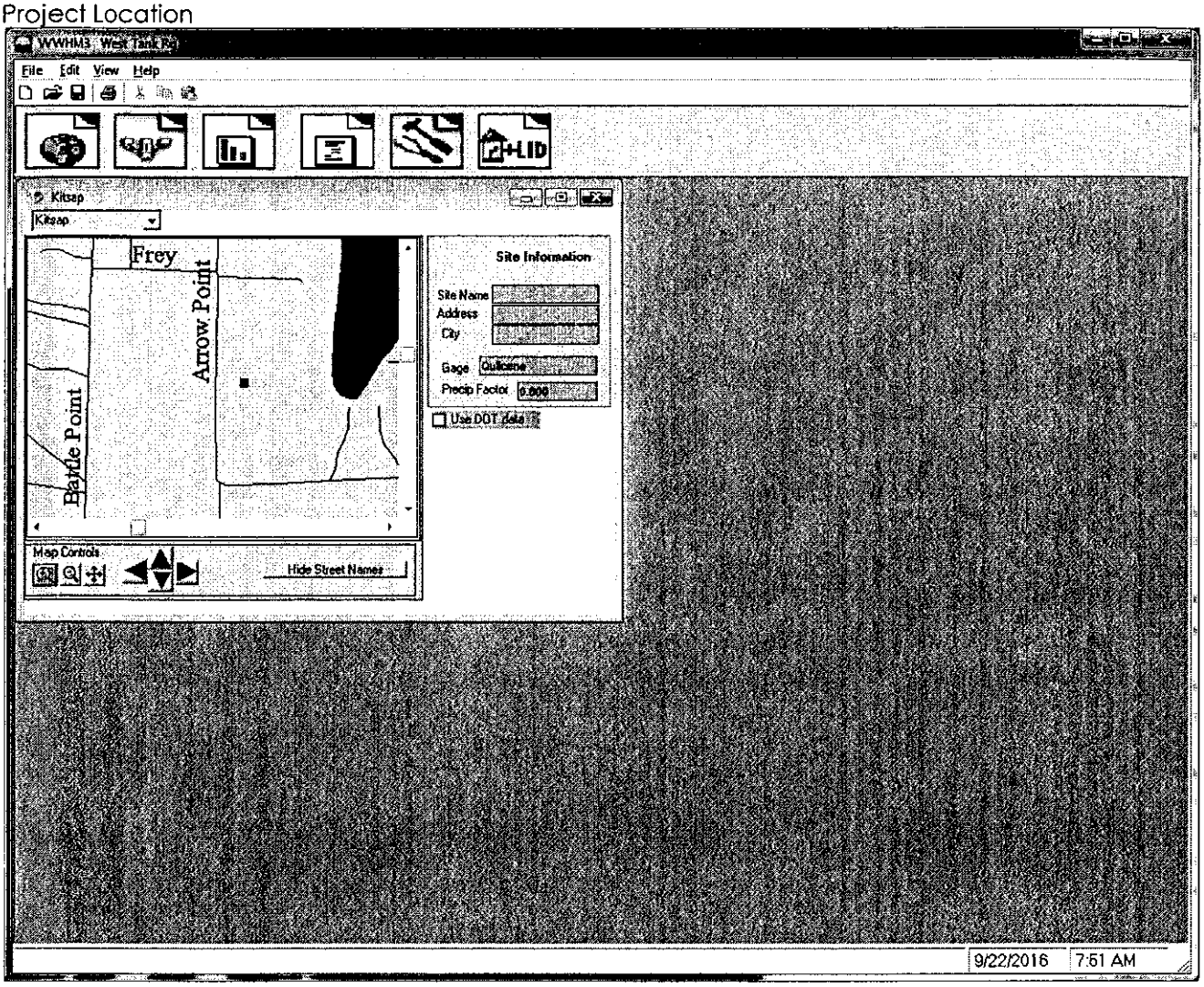
To: Janelle Hitch, PE
City of Bainbridge Island

From: Adam Wheeler P.E.
Browne Wheeler Engineers, Inc.

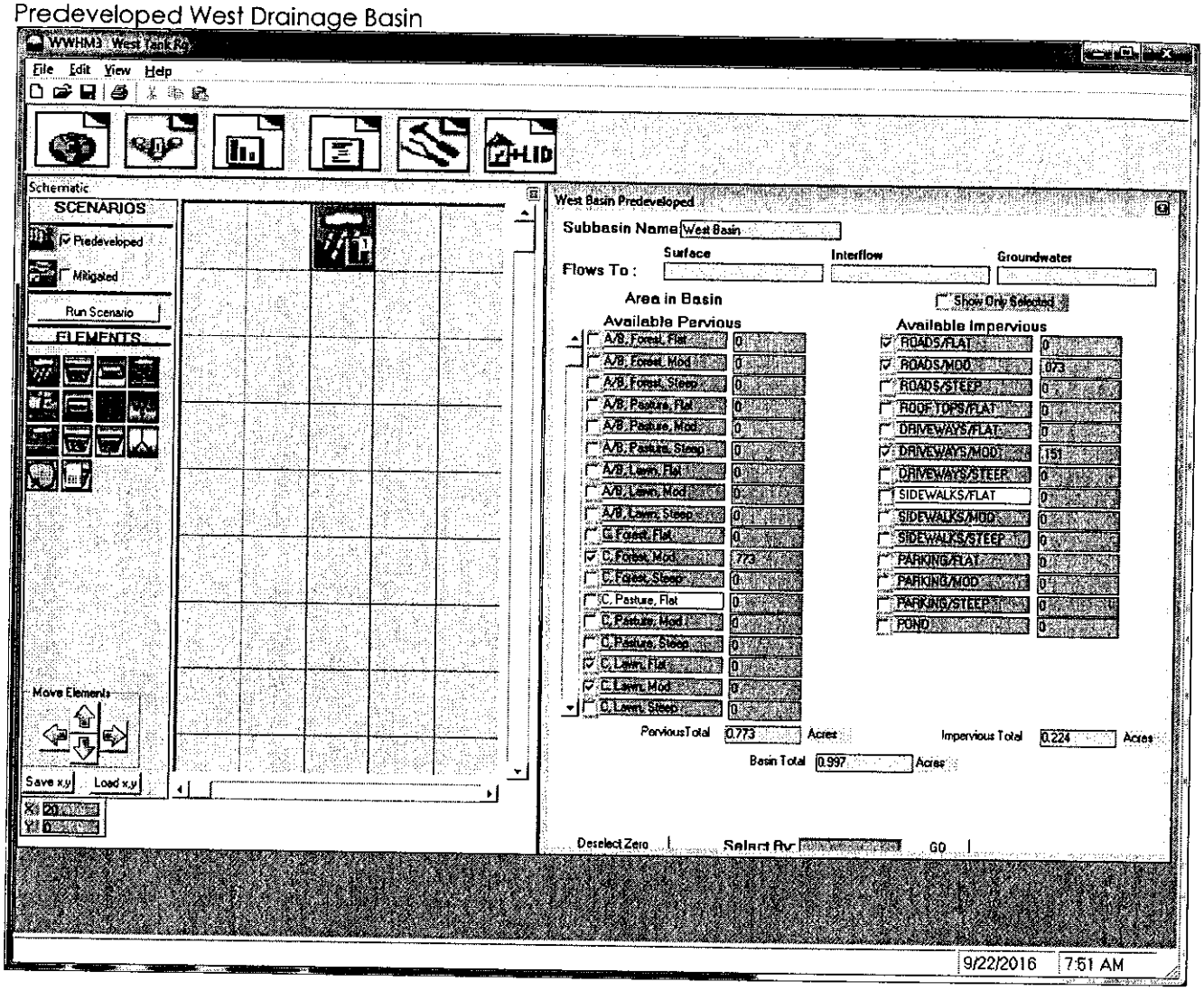
Re: Montessori Country School CUP Revision 1

Attached are 7 full size and 2 half size copies of the modified Montessori Country School's CUP Utility Plans. In addition we have attached a memorandum providing more detail on the east dispersion system. We have also modified the stormwater system on the west side of the project. Attached are new calculations supporting the sizing of the west detention tank. Let me know if you have any questions or comments.

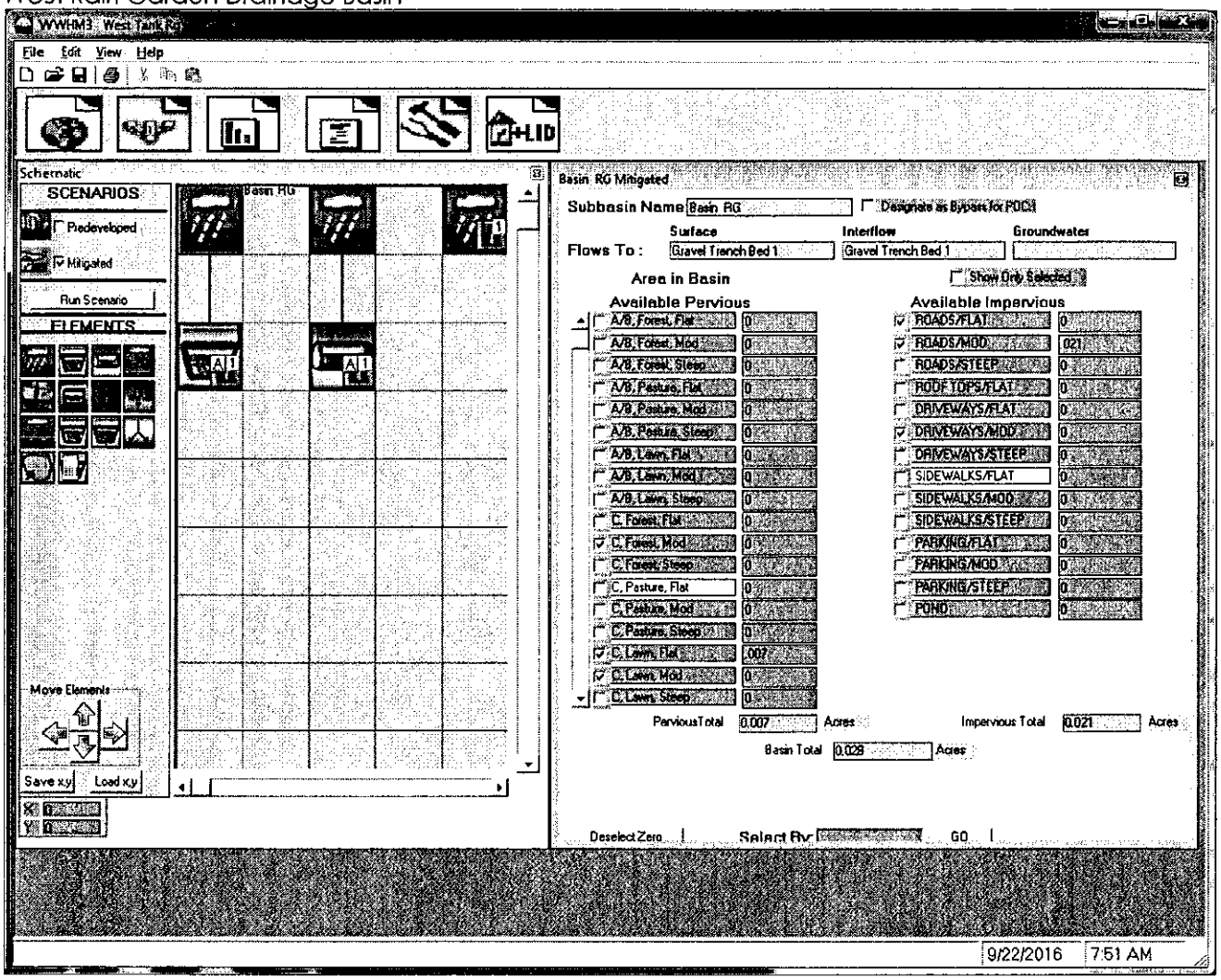
Project Location



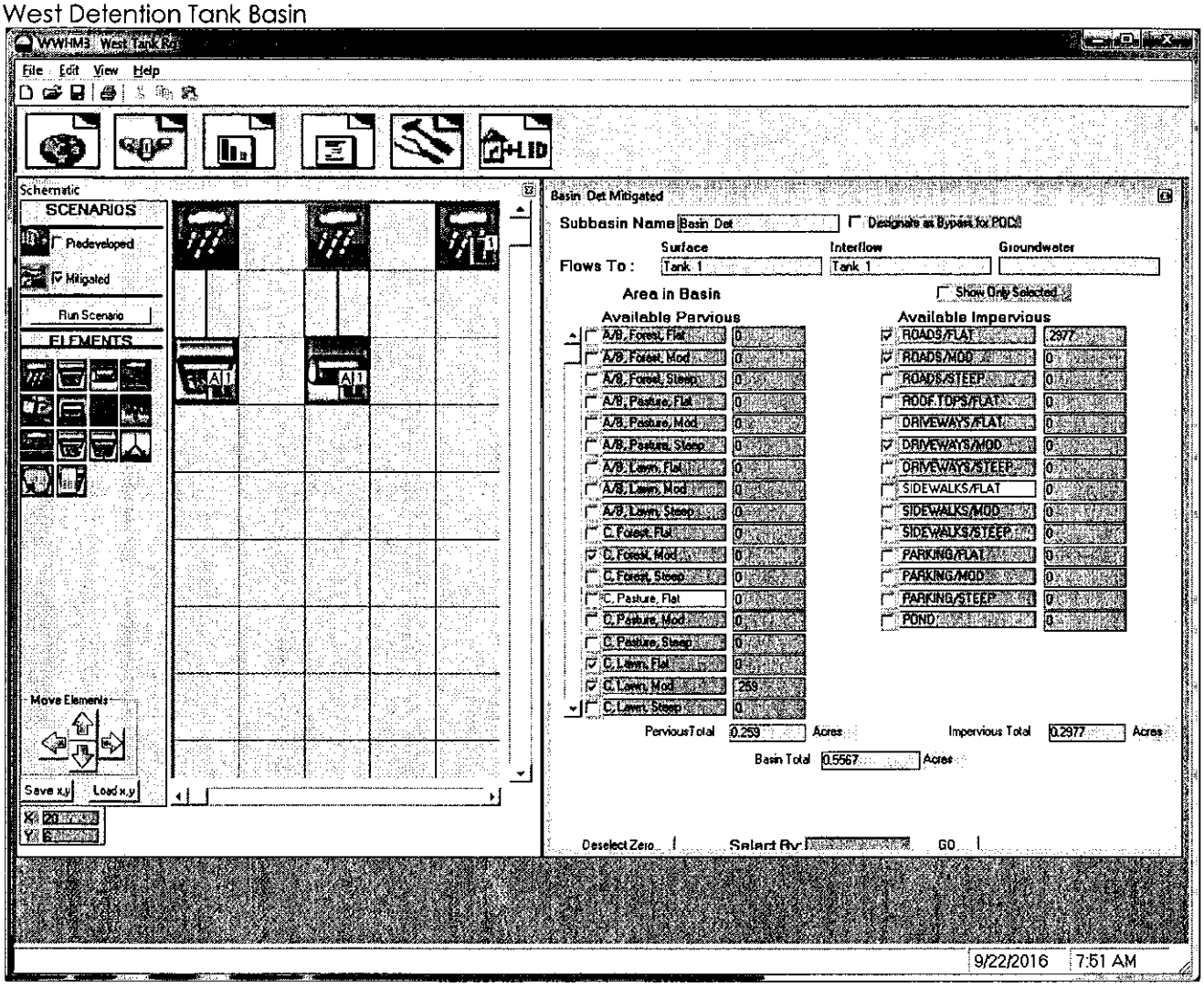
Predeveloped West Drainage Basin



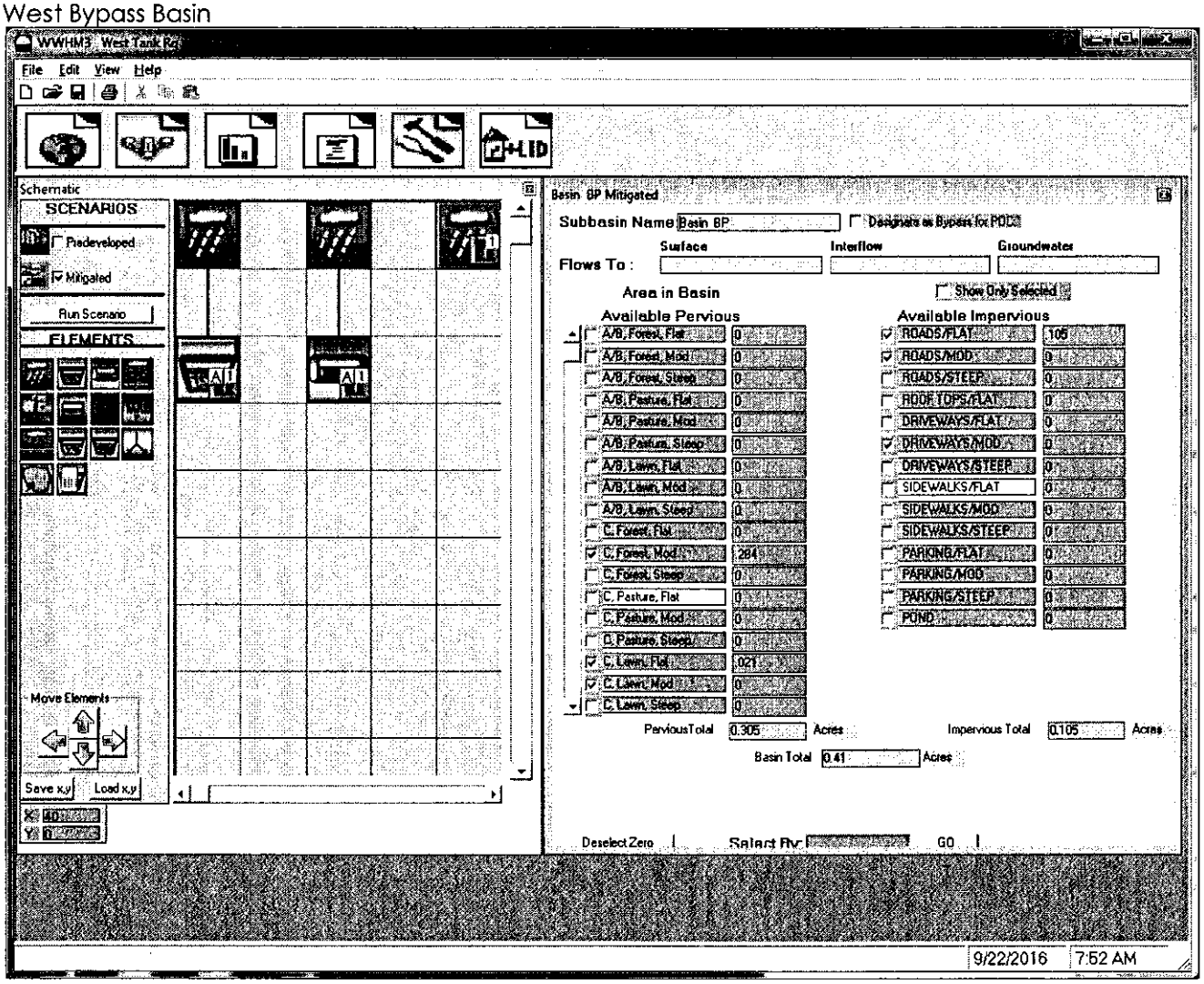
West Rain Garden Drainage Basin



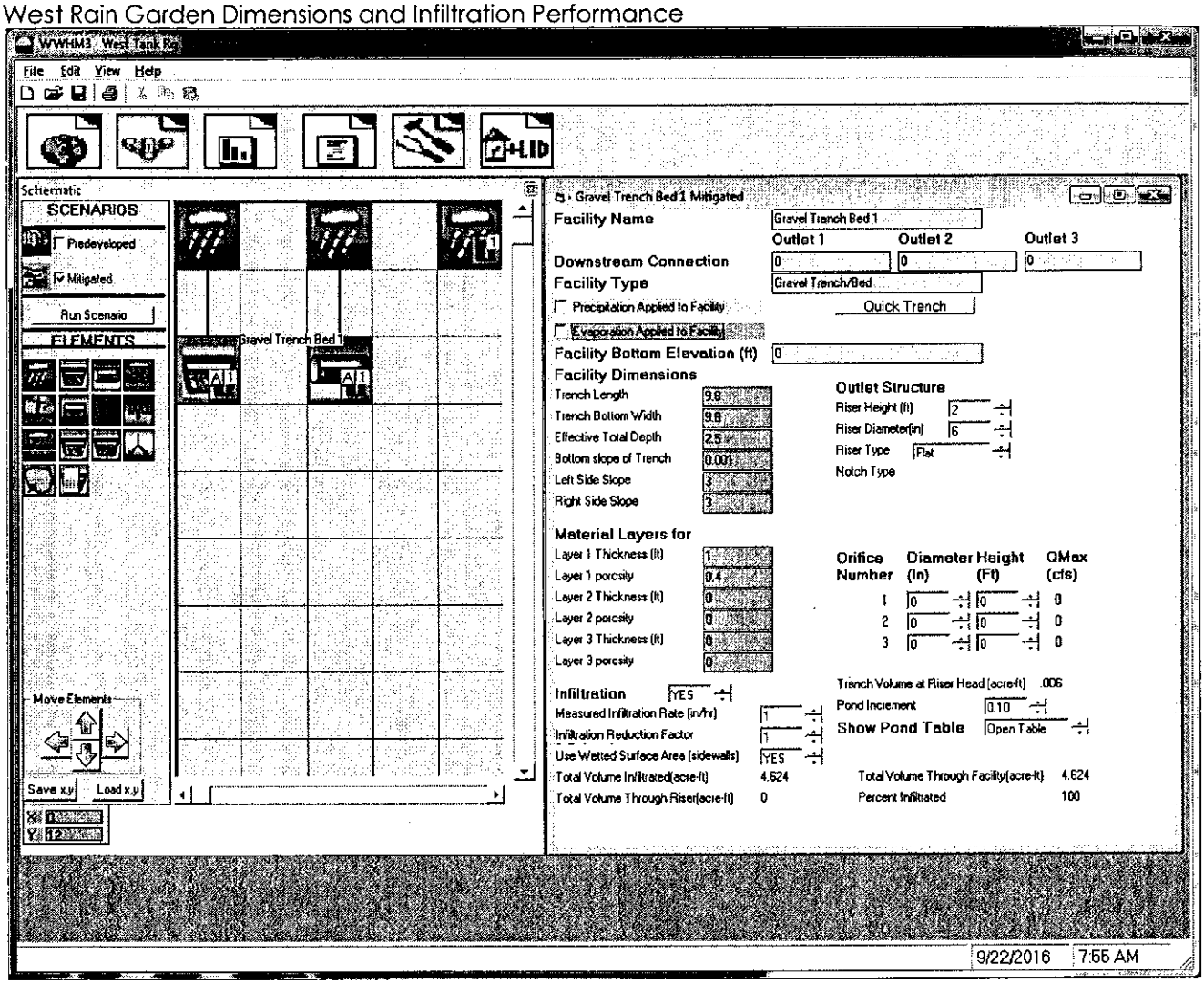
West Detention Tank Basin



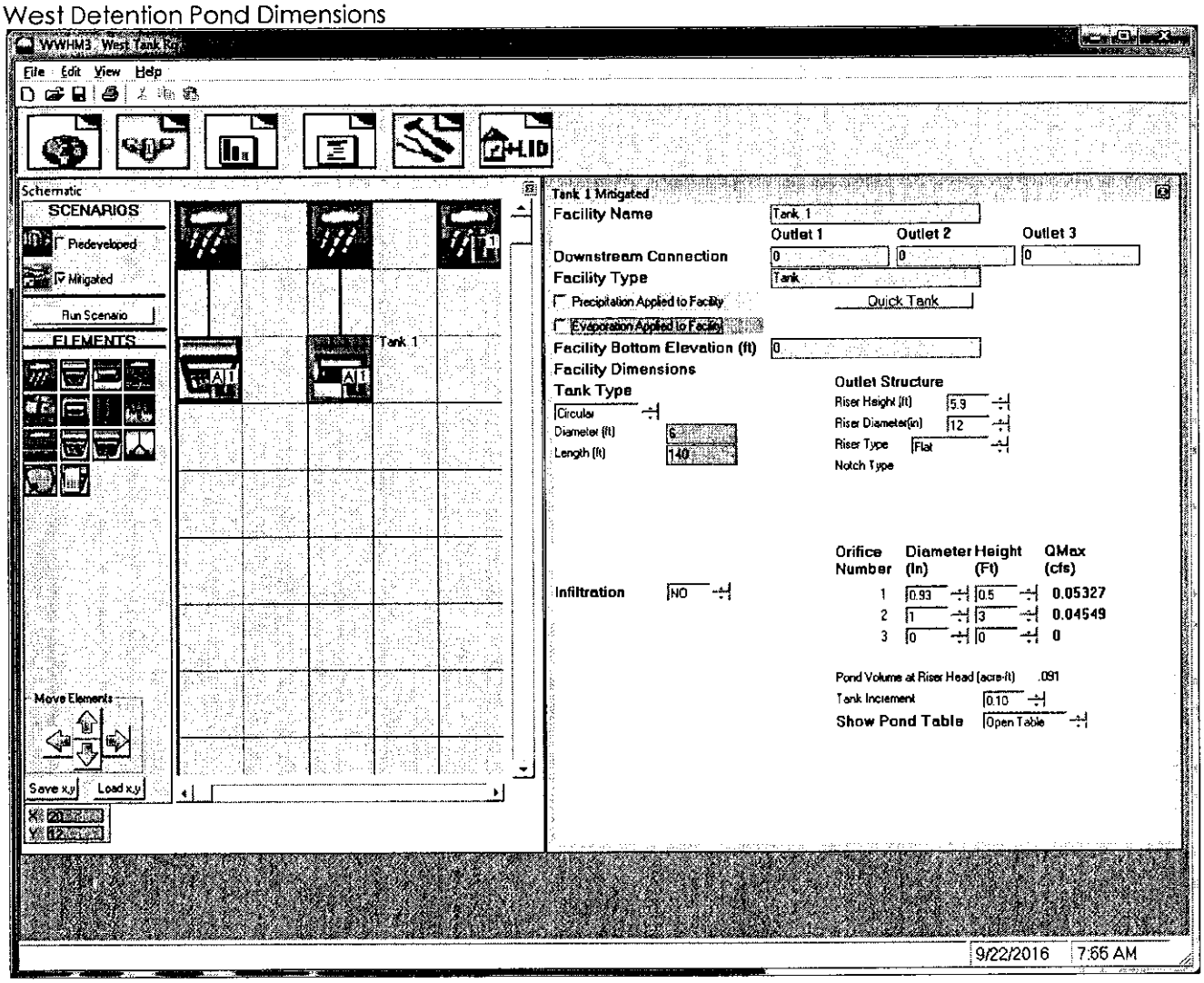
West Bypass Basin



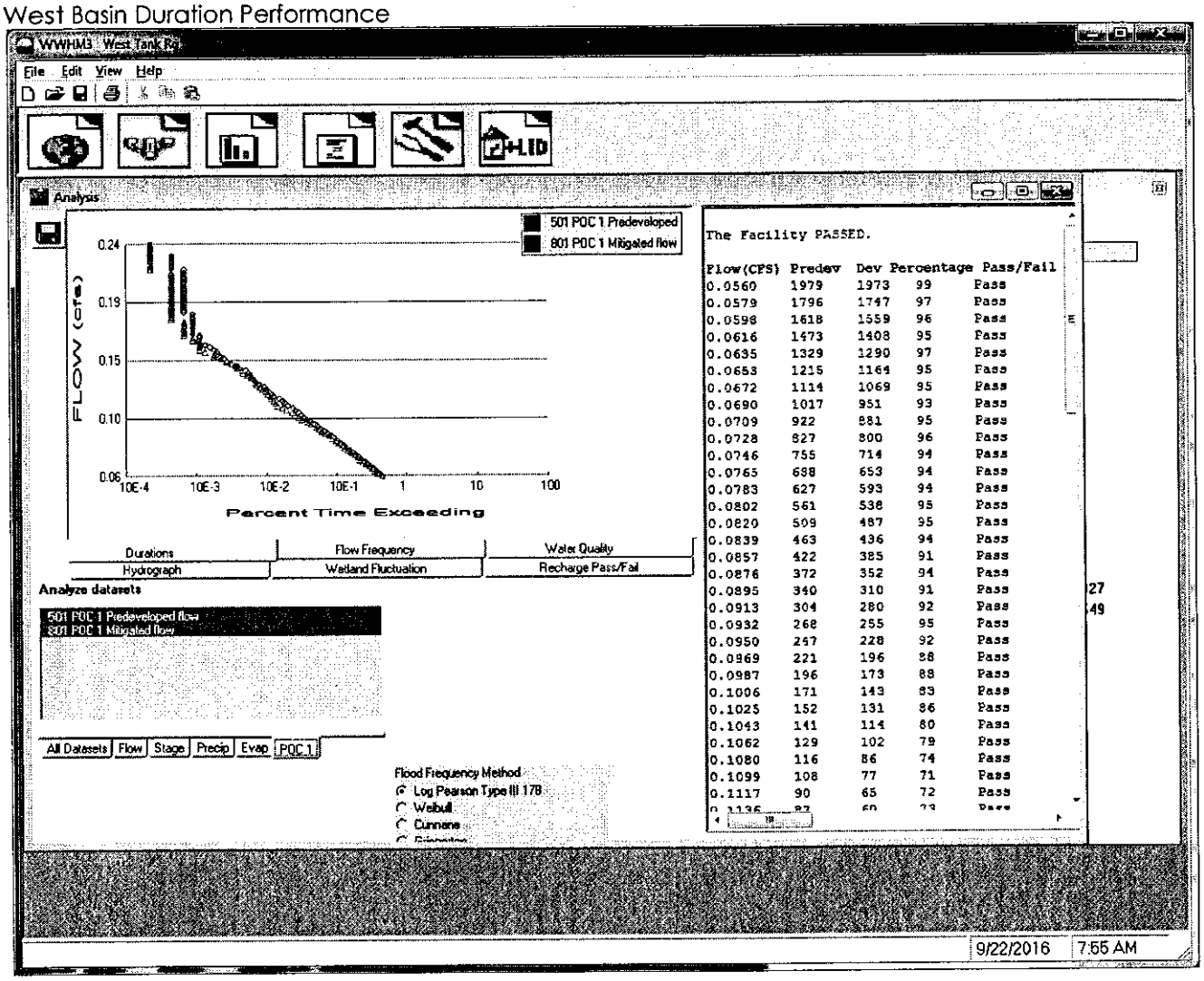
West Rain Garden Dimensions and Infiltration Performance



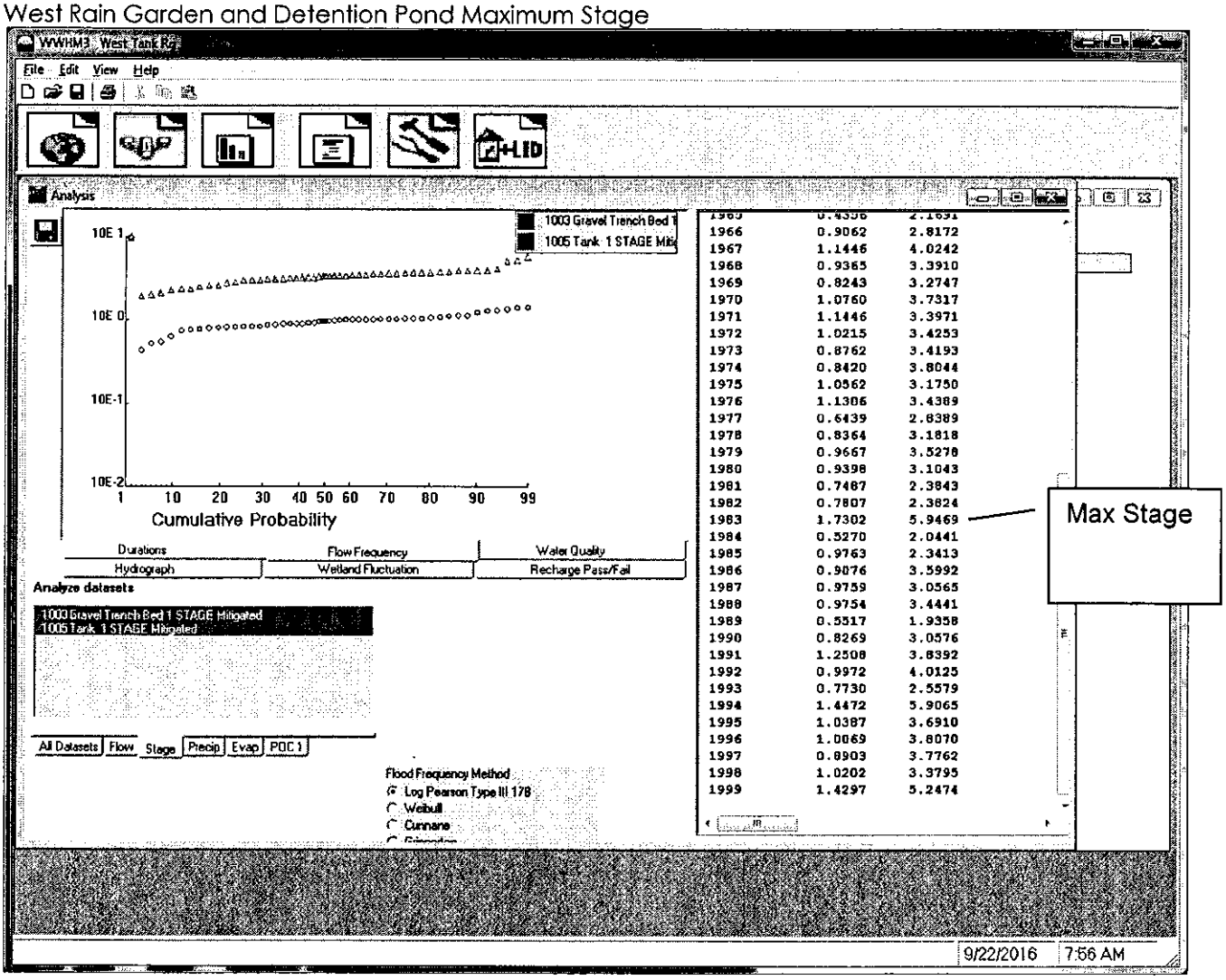
West Detention Pond Dimensions



West Basin Duration Performance



West Rain Garden and Detention Pond Maximum Stage



City of Bainbridge Island

SEP 22 2016

Planning and
Community Development

Memorandum

Date: September 21, 2016

To: Janelle Hitch
City of Bainbridge Island

From: Adam Wheeler, PE
Browne Wheeler Engineers, Inc.

Re: Montessori Country School
East Dispersion System

As requested we have provided a more detailed description of the east flow control system for the Montessori Country School. The Stormwater Manual describes Full Dispersion in BMP T5.30. "This BMP allows for "fully dispersing" runoff from impervious surfaces and cleared areas of development sites that protect at least 65% of the site in a forest or native condition." The forest area needs to be protected in recorded easement that will preserve the vegetation through the life of the drainage system. This will be accomplished before the project obtains final occupancy. The full dispersion criteria also requires the following:

10% Impervious maximum

100 foot flow path and

Trench length design and setbacks meeting BMP T5.10.

In the case of Montessori Country School the east portion of the project meets all of these criteria except the trench design. There is room to reasonable place four 50 foot dispersion trenches. This length of dispersion trench is adequate to receive water from 14,000 square feet of impervious area.

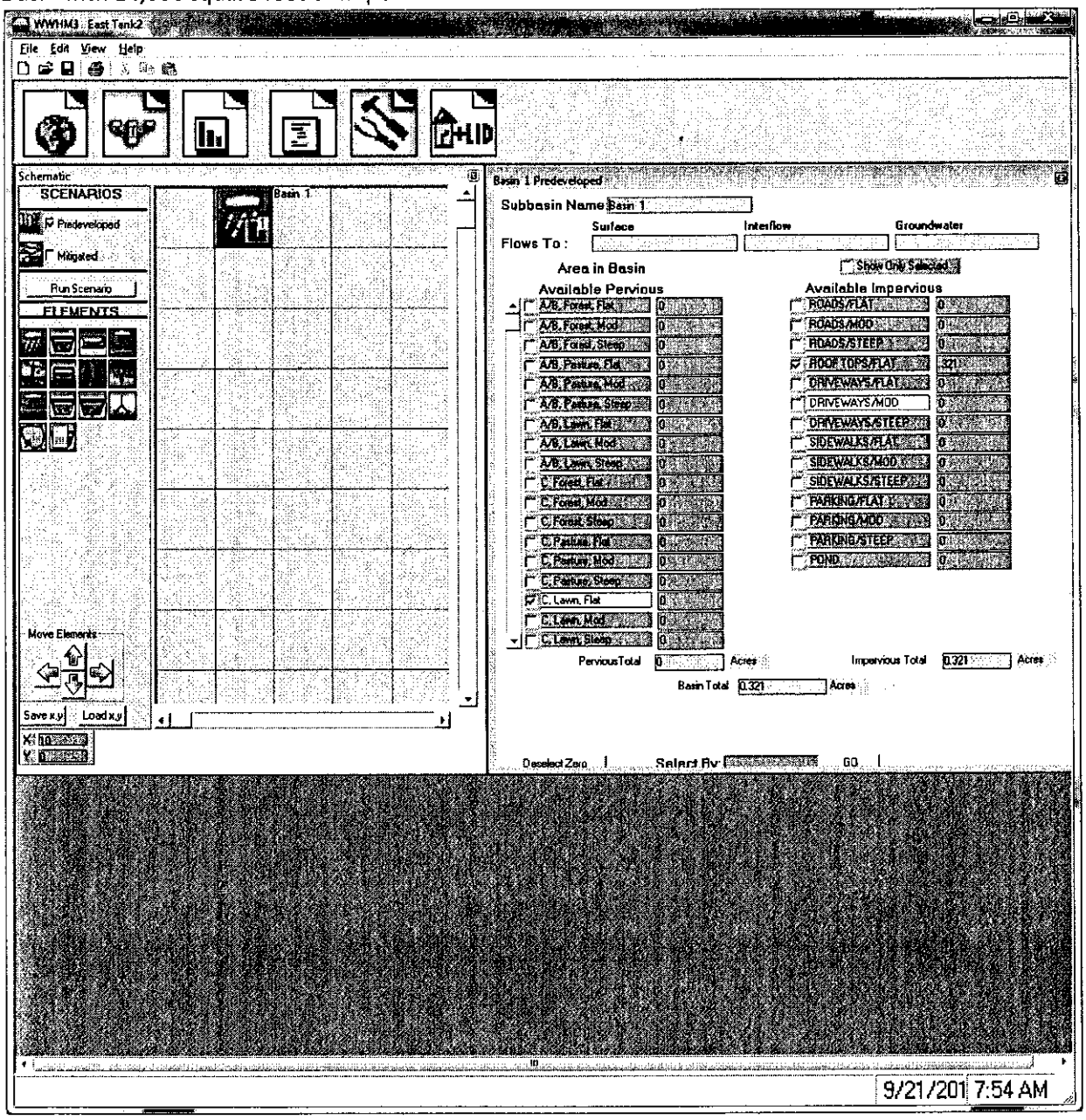
The project is proposing to construct 14,300 square feet of impervious area and 1,964 square feet landscaping that cannot be dispersed through 25 feet of native vegetation. The remainder of the landscaping in the east basin (29,813 square feet) can be dispersed through 25 feet of native vegetation. Because we are proposing to route a greater area to the dispersion trenches then detailed in BMP T5.10, we will route the water to a detention system first. The detention system will reduce the flow rate to match the flow durations from a 14,000 square foot impervious area. In addition the detention system will reduce the peak 2 year flow by 12% and the 100 year flow by 18%. The dispersion system will then operate as the stormwater manual intended.

The detention system will consist of a 4-foot diameter 50-foot long tank. This tank will discharge to an 8-inch HDPE pipe that will route the water to the east and to the dispersion system.

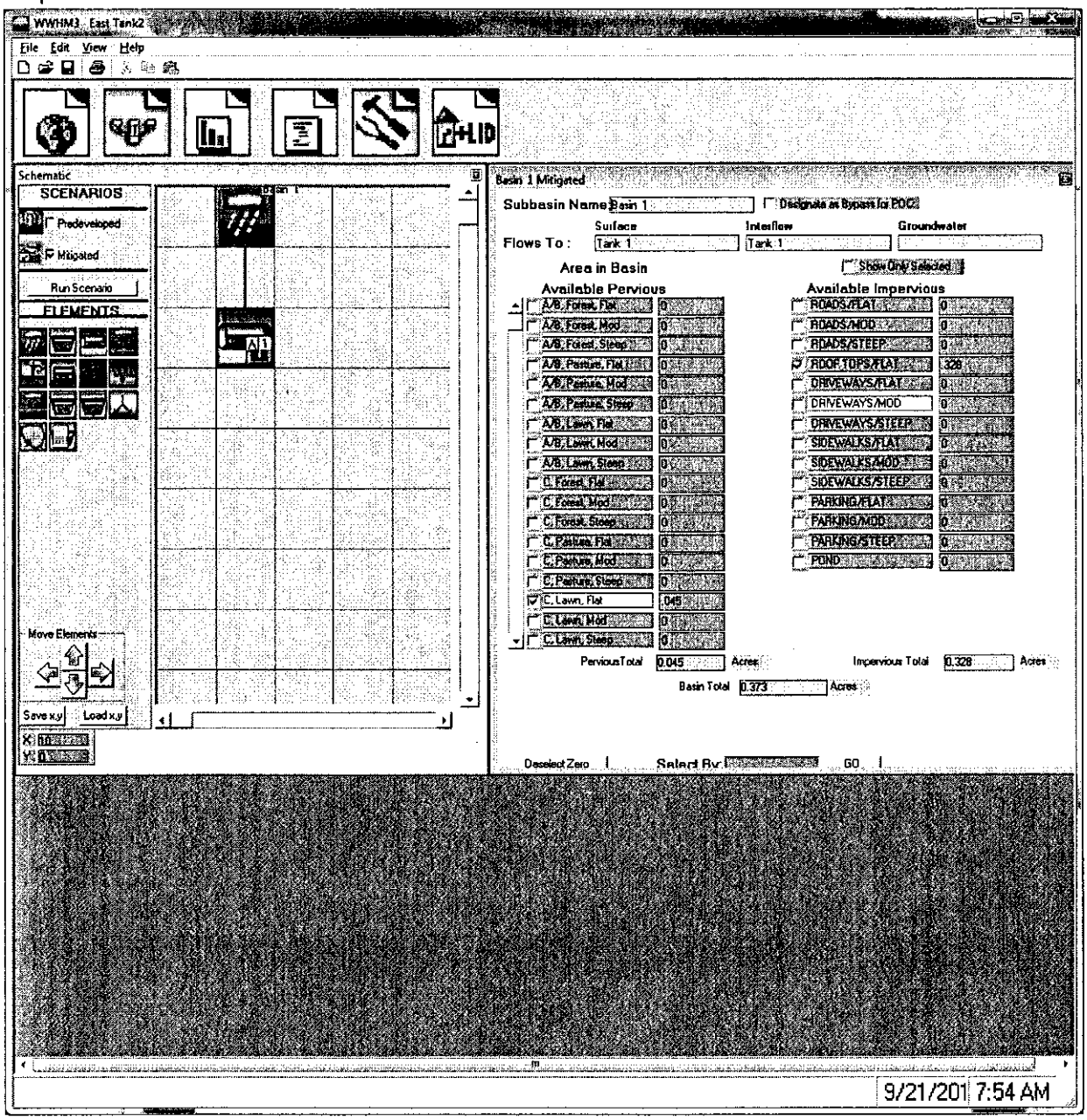
The dispersion system will consist of four 6-inch diameter 50-foot long pipes. The pipes will be equipped with 2 inch standpipes placed on 5 foot centers. The 6-inch pipe will be laid on top of grade at an approximate consistent elevation because we do not want to remove additional vegetation to install the system. Since the 6-inch pipe will not be laid at exactly the same grade the 2-inch stand pipes will have a varying length, but the tops of the pipes will be cut to the same elevation. This will allow an equal distribution of the water along the entire pipe line. In addition a drain rock pad will be placed at each stand pipe to prevent erosion under the stand pipe and spread the runoff into the existing vegetation.

This system meets the intent of the full dispersion criteria and provides equal mitigation of the stormwater impact at the site. Please let me know if you have any additional questions or comments.

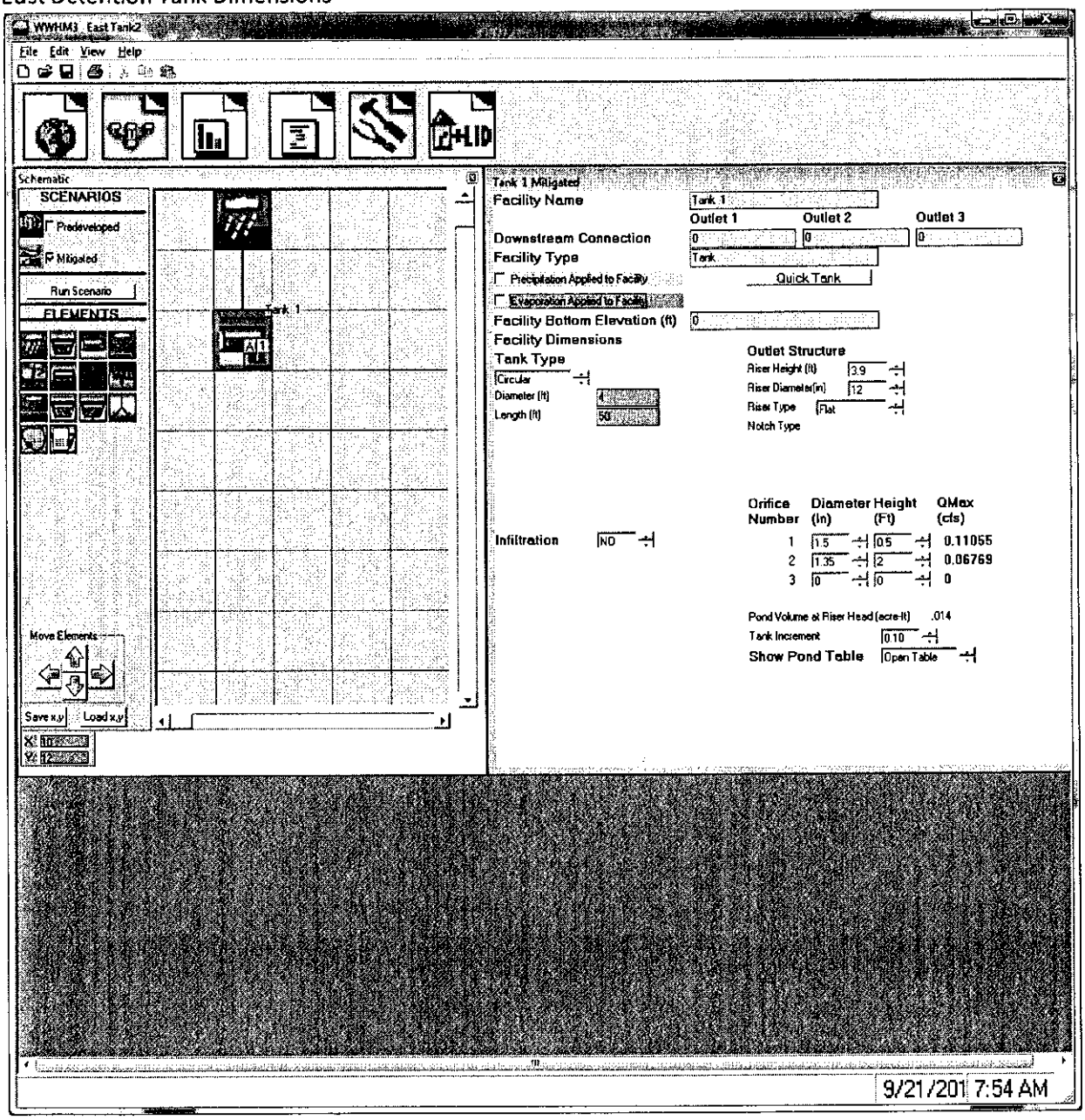
Basin with 14,000 square feet of Impervious Area



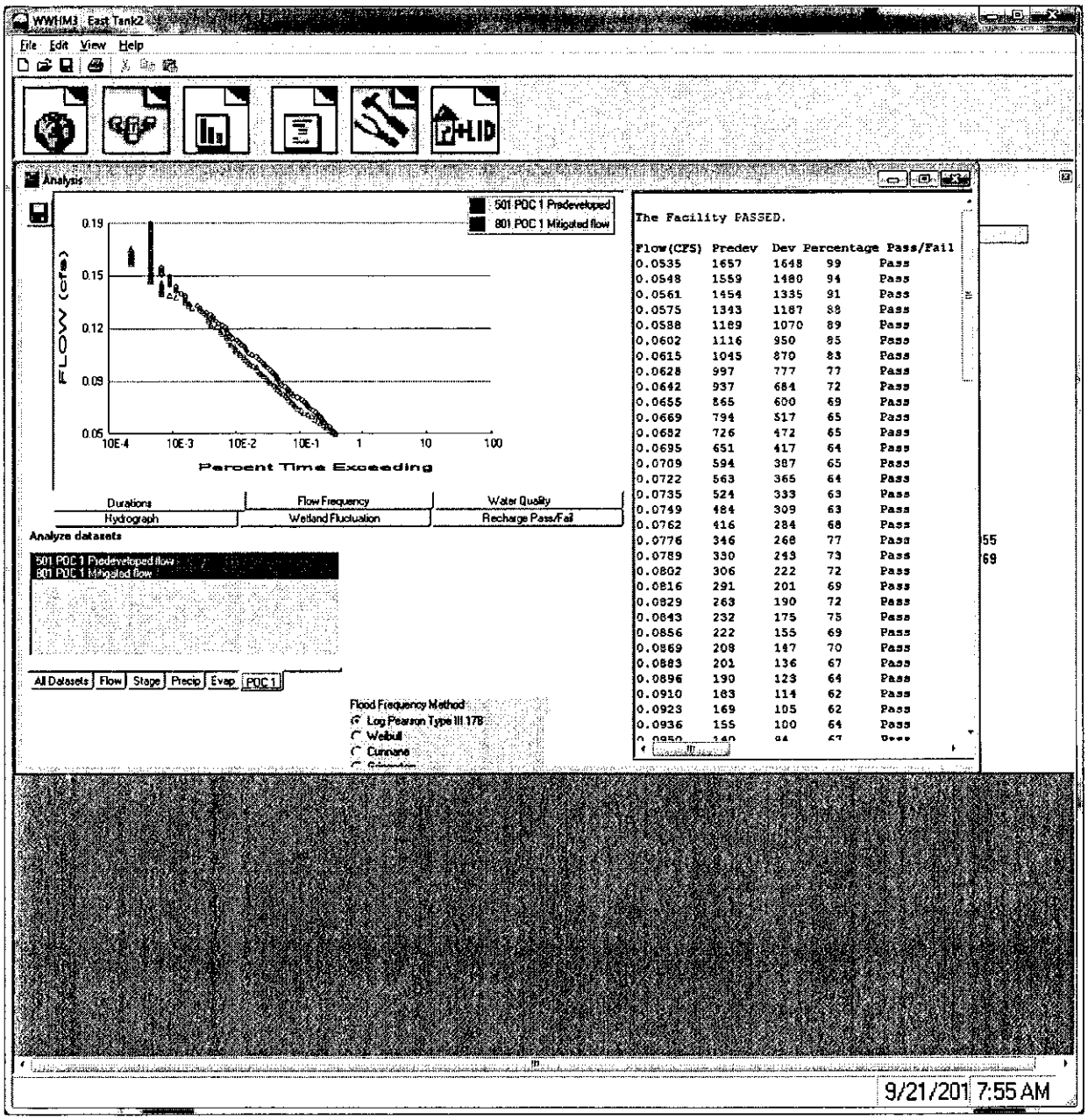
Proposed Basin Characteristics



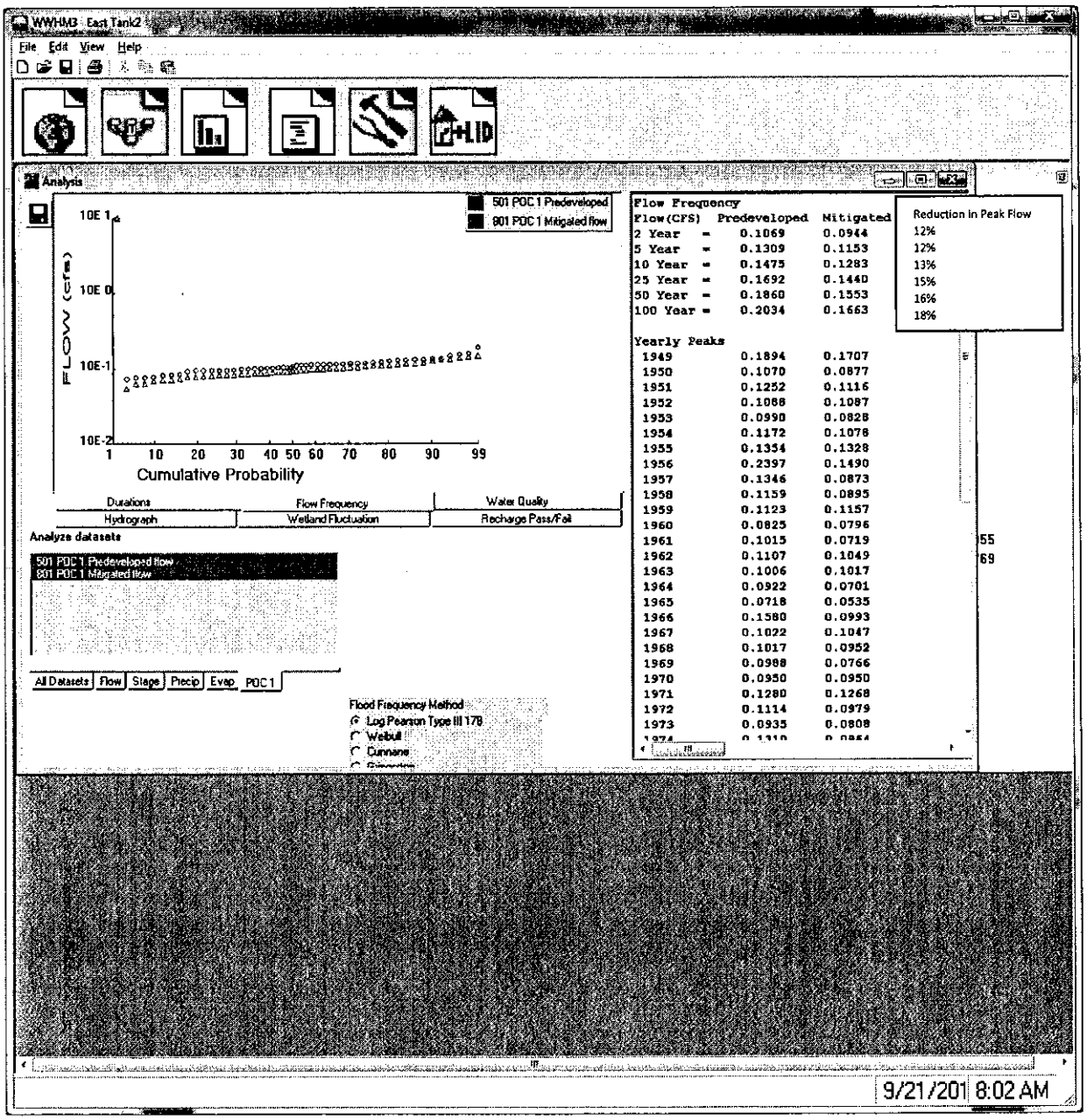
East Detention Tank Dimensions

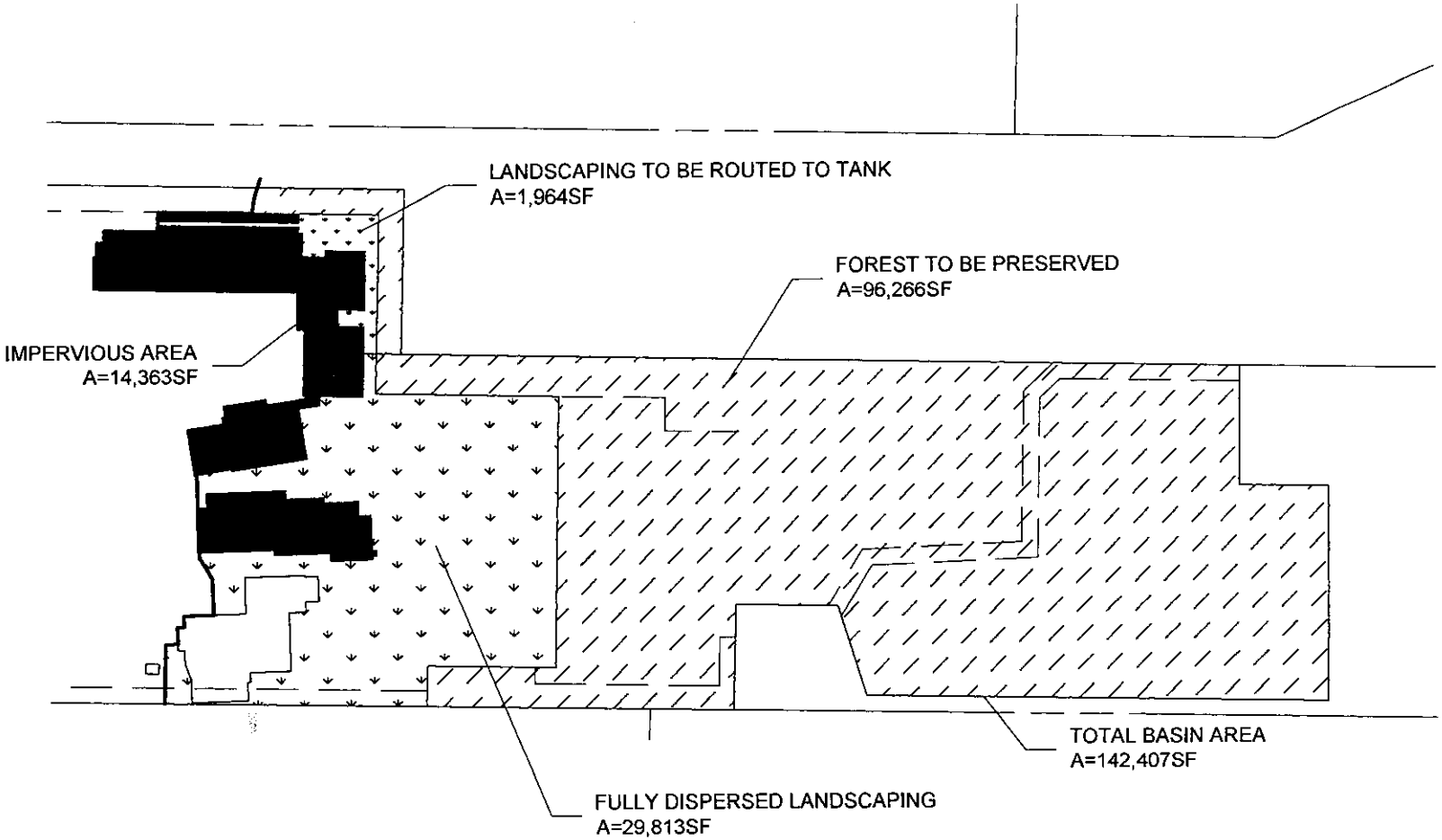


Flow Durations



Peak Flow


WWHM3 East Tank2
File Edit View Help
Analysis
501 POC 1 Predeveloped
901 POC 1 Mitigated flow
FLOW (cfs)
10E 1
10E 0
10E-1
10E-2
1 10 20 30 40 50 60 70 80 90 99
Cumulative Probability
Durations
Flow Frequency
Water Quality
Hydrograph
Wetland Fluctuation
Recharge Pass/Fail
Analyze datasets
501 POC 1 Predeveloped flow
901 POC 1 Mitigated flow
All Datasets
Flow
Stage
Precip
Evap
POC 1
Flood Frequency Method
Log Pearson Type III 17B
Weibull
Cunnane
Flow Frequency
Flow(CFS) Predeveloped Mitigated
2 Year = 0.1069 0.0944
5 Year = 0.1309 0.1153
10 Year = 0.1475 0.1283
25 Year = 0.1692 0.1440
50 Year = 0.1860 0.1553
100 Year = 0.2034 0.1663
Yearly Peaks
1949 0.1894 0.1707
1950 0.1070 0.0877
1951 0.1252 0.1116
1952 0.1068 0.1087
1953 0.0990 0.0828
1954 0.1172 0.1078
1955 0.1354 0.1328
1956 0.2397 0.1490
1957 0.1346 0.0873
1958 0.1159 0.0895
1959 0.1123 0.1157
1960 0.0825 0.0796
1961 0.1015 0.0719
1962 0.1107 0.1049
1963 0.1006 0.1017
1964 0.0922 0.0701
1965 0.0718 0.0535
1966 0.1580 0.0993
1967 0.1022 0.1047
1968 0.1017 0.0952
1969 0.0988 0.0766
1970 0.0950 0.0950
1971 0.1280 0.1268
1972 0.1114 0.0979
1973 0.0935 0.0808
Reduction in Peak Flow
12%
12%
13%
15%
16%
18%
9/21/201 8:02 AM



LAND COVER	PERCENT OF TOTAL
FOREST	67%
IMPERVIOUS	10%

N

EAST DRAINAGE BASIN

SCALE: 1" = 100'

BROWNE • WHEELER
ENGINEERS, INC
241 ERICKSEN AVENUE NE
BAINBRIDGE ISLAND, WA 98110
P 206.842.0605 INFO@BrowneWheeler.COM

REVISED

City of Bainbridge Island

NOV 14 2016

Planning and Community Development

Memorandum

Date: November 14, 2016

To: Janelle Hitch
City of Bainbridge Island

From: Adam Wheeler, PE
Browne Wheeler Engineers, Inc.

Re: Montessori Country School
PLN17677-SPR-CUP

ADAM E. WHEELER
STATE OF WASHINGTON
40430
REGISTERED
PROFESSIONAL ENGINEER

We have reviewed your comments dated 11/7/16 and have the following responses:

Review Comments:

1. A Geotechnical Engineering Report prepared by Aspect Consulting, dated 6/24/16 was submitted to the City. I have included it in this submittal. Section 4.1 Geologically Hazardous Area Considerations states that "it is our opinion that the slope is not geologically hazardous area." If required Aspect Consulting can review the proposed drainage system as part of the building permit approval process.

2. We have attached a map illustrating the proposed forest retention area and the existing canopy. We have also included photographs of the area to support that the area is in a forested condition. It should be noted that according to the City's adopted manual "The preserved area may be used for passive recreation and related facilities, including pedestrian and bicycle trails, nature viewing areas, fishing and camping areas, and other similar activities that do not require permanent structures, provided that cleared areas and areas of compacted soil associated with these areas and facilities do not exceed eight percent of the preserved area.

3. In our memorandum dated 9/21/16 we detailed the areas to be retained, dispersed impervious area and dispersed landscape area. With the proposed areas we have 69% (96,300sf) retained forested area, 21% (29,800sf) dispersed landscaping and 10% (14,300sf)dispersed impervious area. Based on this we are meeting the retention requirements.
We are proposing to construct four 50-foot long dispersion systems. These systems are capable of dispersing 14,000 square feet of impervious area. Because of this we have 300 square feet of impervious area that needs to be mitigated for. In addition, there is approximately 2,000 square feet of landscaping that we are not able to sheet flow disperse. To address this, we proposed reducing the peak flow from these areas to below the duration rate of 14,000 square feet of impervious area and routing them to the dispersion systems. We believe this would give the

school the least costly, lowest maintenance system and provide the required downstream protection demanded by the manual.

Alternatively we have provided a sketch of a system that separates the 300 square feet of impervious area and 2,000 square feet of landscaping. These areas would be routed to a detention tank and a piped outlet would be provided to a suitable outlet location. The runoff from the remaining impervious area (14,000sf) would flow directly to the dispersion systems. This alternative storm drainage system has a smaller tank than the original proposal, but does require a separate outfall pipe. Because the outlet flow rate (0.0067 cubic feet per second,cfs) from the alternate system is below 0.2-cfs it is only required to discharge onto a rock pad.

The alternative system would be more expensive, more complicated and provide less detention mitigation. For these reasons we request that the system proposed in our 9/21/16 memorandum be accepted.

4. We have provided a figure illustrating that the dispersion system and the 100 foot flow paths are not in areas with a slope over 20%.

5. The requirements for cleared area dispersion allows for dispersion to occur on slopes over 8%. This is allowed if the flow path is increased by 1.5 feet for every percent increase over 8% in addition to the minimum 25 feet of flow path. The proposed dispersion area has a slope of 12.6%. The flow path has been increased by 6.9-feet (4.6%*1.5-feet) to 32.9-feet. A figure is attached showing the proposed dispersion flow path.

6. We have calculated the 100-year peak runoff rate from the project on the east side after mitigation, including the existing building and it is 0.22-cfs. The Manual states that concentrated runoff may be discharged through a dispersal system provided the applicant can demonstrate that there will be no significant adverse impact to downhill properties.

   The proposed dispersion systems will be located over 100-feet from the downstream property lines. In addition the Kitsap Public Health District requires that all dispersion systems should be at least 30 feet upstream of a drain field. There is a drain field located on the adjacent downhill parcel. The proposed dispersion system is over 110-feet from this drainfield.

   We discussed this situation with Dave Martin of Miller Bay Water Co. To provide extra protection he proposed that a curtain drain be installed above the drainfield to route any ground water around the drain field (see attached memorandum dated 11/11/16). We have added a curtain drain at least 10 feet uphill from the drainfield.

7. We investigated the existing drainage system for the existing building and have shown the approximate locations. The outlets from these systems could not be determined. If the systems are encountered during construction they will be routed to a 4-foot by 4-foot drywell that is located meeting all required setbacks.

N

EXISTING TREE CANOPY

SCALE: 1" = 50'

0 10 25 50 100

DISPERSION AREA

#1 SITE PHOTO

FOREST TO REMAIN

BROWNE • WHEELER
ENGINEERS, INC
241 ERICKSEN AVENUE NE
BAINBRIDGE ISLAND, WA 98110
P 206.842.0605 INFO@BrowneWheeler.COM

EXISTING TREE CANOPY
MONTESSORI COUNTRY SCHOOL
CONDITIONAL USE PERMIT

FILE NAME: TREE CANOPY TRY THREE.DWG PLOT DATE: 11/11/2016 4:55 PM PLOT DEVICE: DWG TO PDF.PC3 PAGE SETUP: ---- PLOTTED BY: NIKKI

SITE PHOTO 1

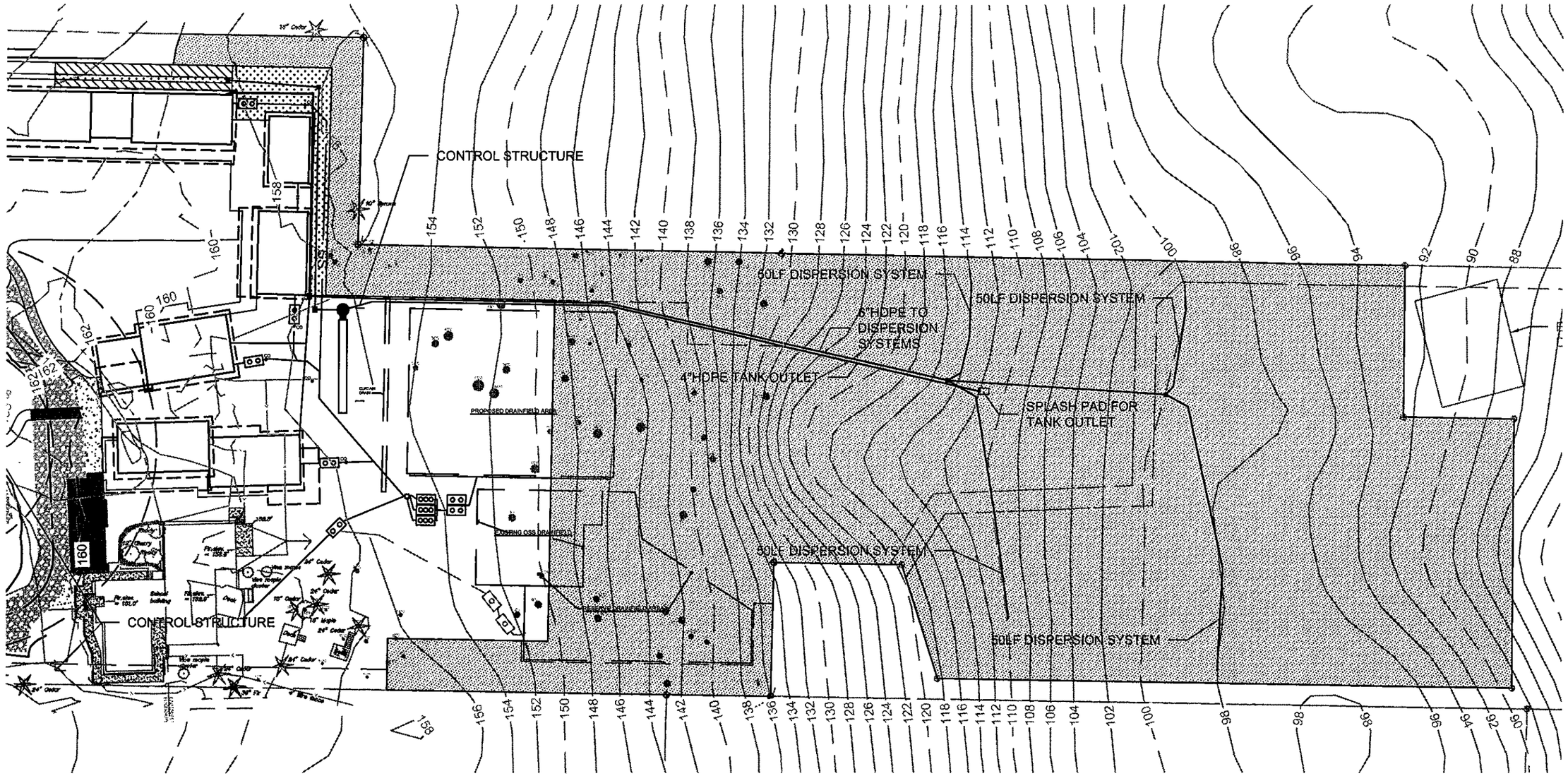
SITE PHOTO 2

SITE PHOTO 3

SITE PHOTO 4

SITE PHOTO 5

SITE PHOTO 6



N

ALTERNATIVE STORM DRAIN PLAN

SCALE: 1" = 50'

0 10 25 50 100

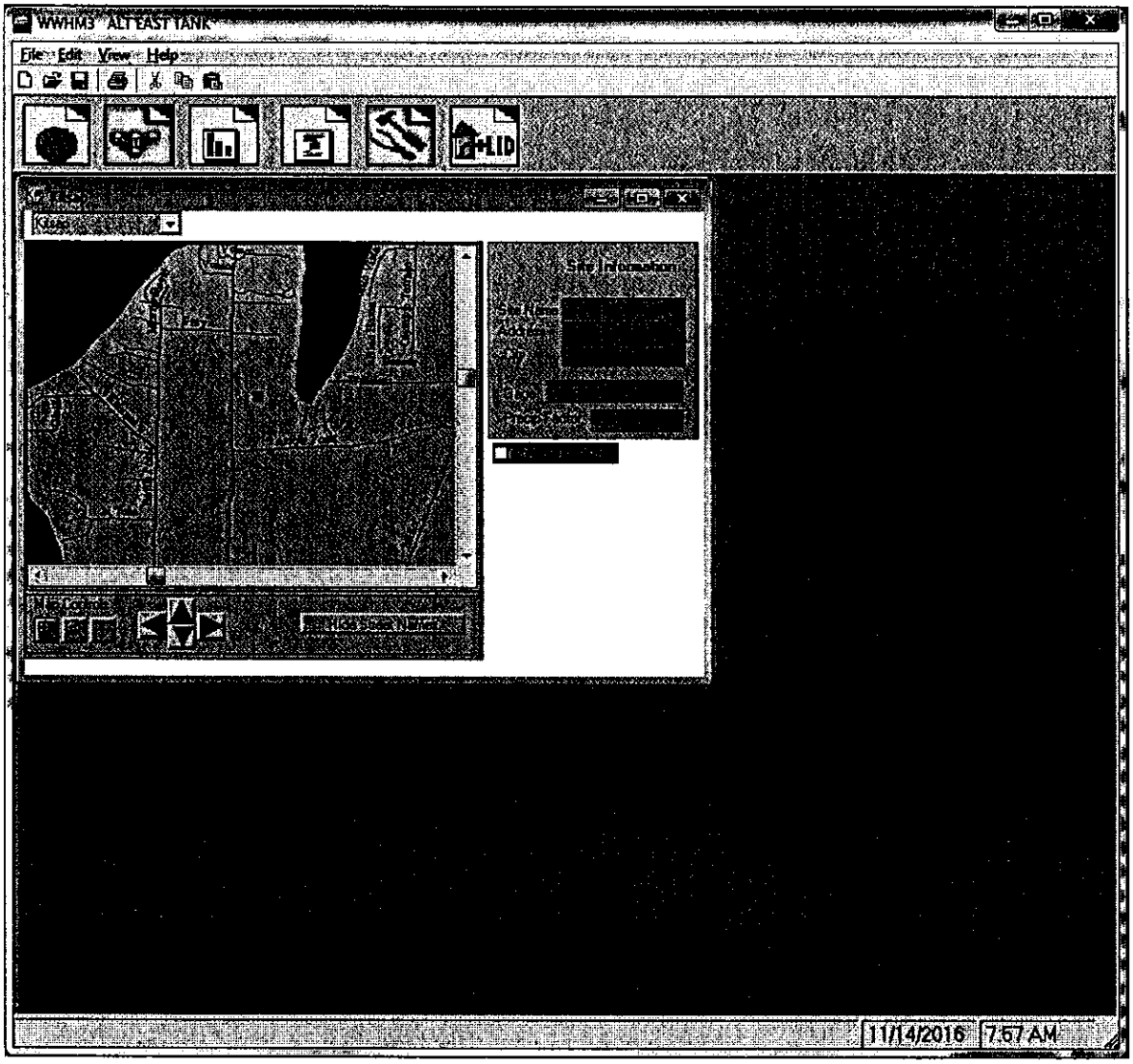
BROWNE • WHEELER
ENGINEERS, INC
241 ERICKSEN AVENUE NE
BAINBRIDGE ISLAND, WA 98110
P 206.842.0605 INFO@BrowneWheeler.COM

ALTERNATIVE STORM DRAIN
MONTESSORI COUNTRY SCHOOL
CONDITIONAL USE PERMIT

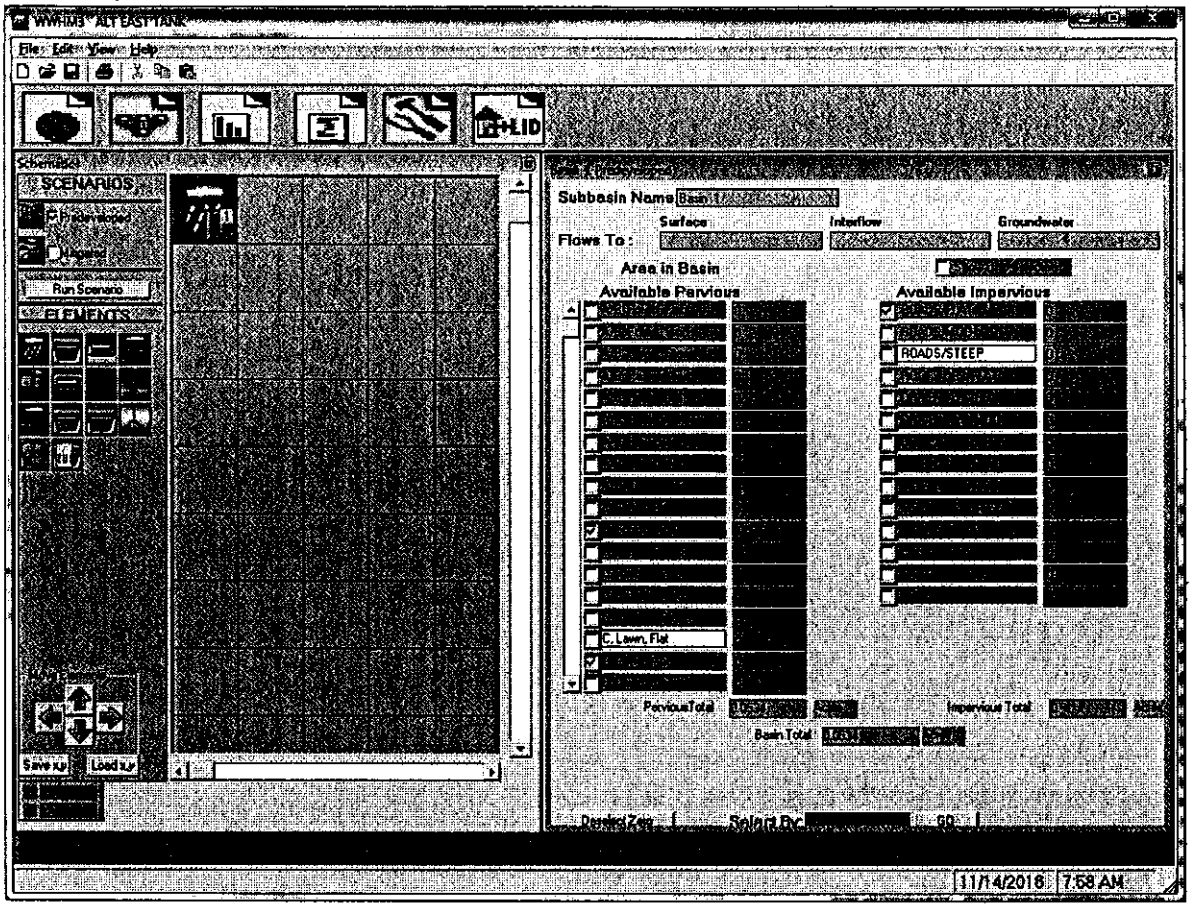
FILE NAME: PLOT-UTILITY.DWG PLOT DATE: 11/11/2016 4:21 PM PLOT DEVICE: DWG TO PDF.PC3 PAGE SETUP: — PLOTTED BY: NIKKI

Alternative East Tank Design

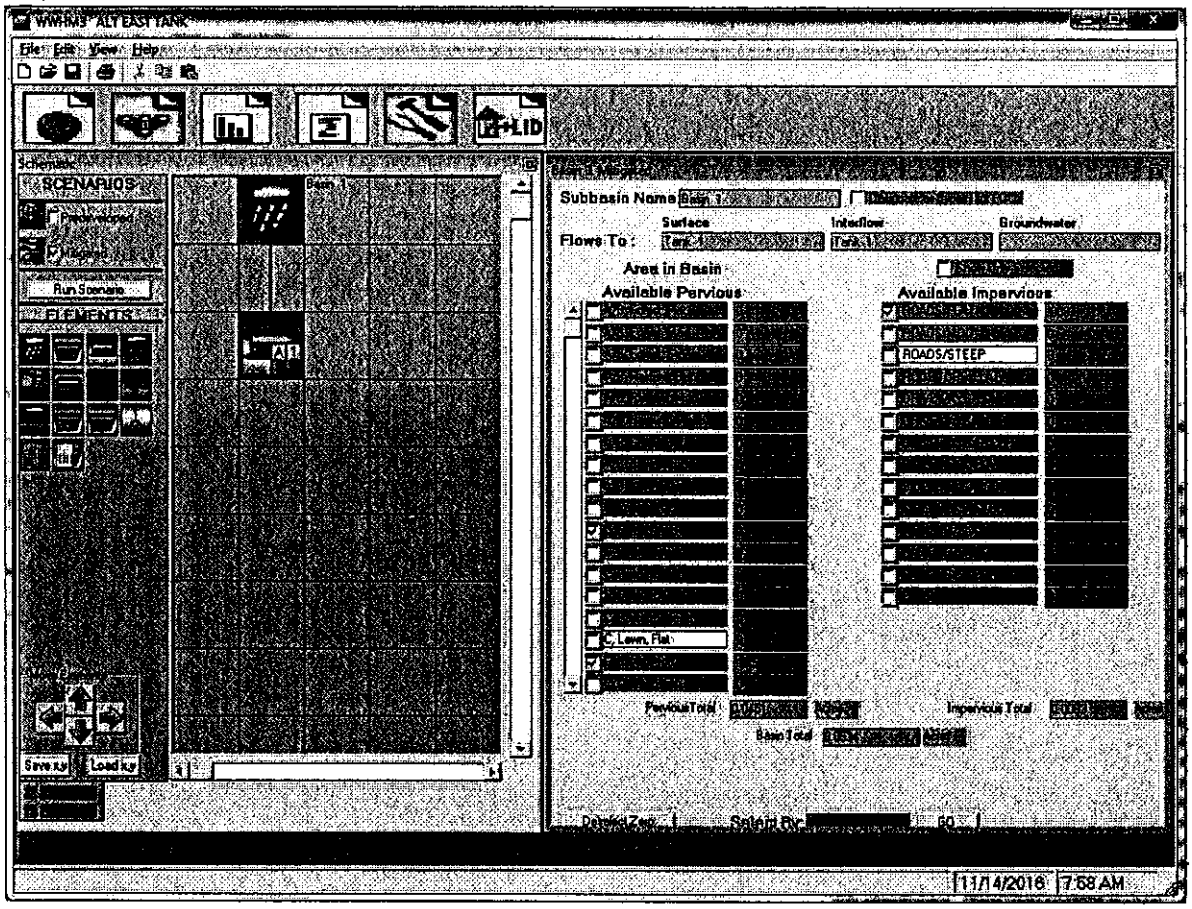
Project Location



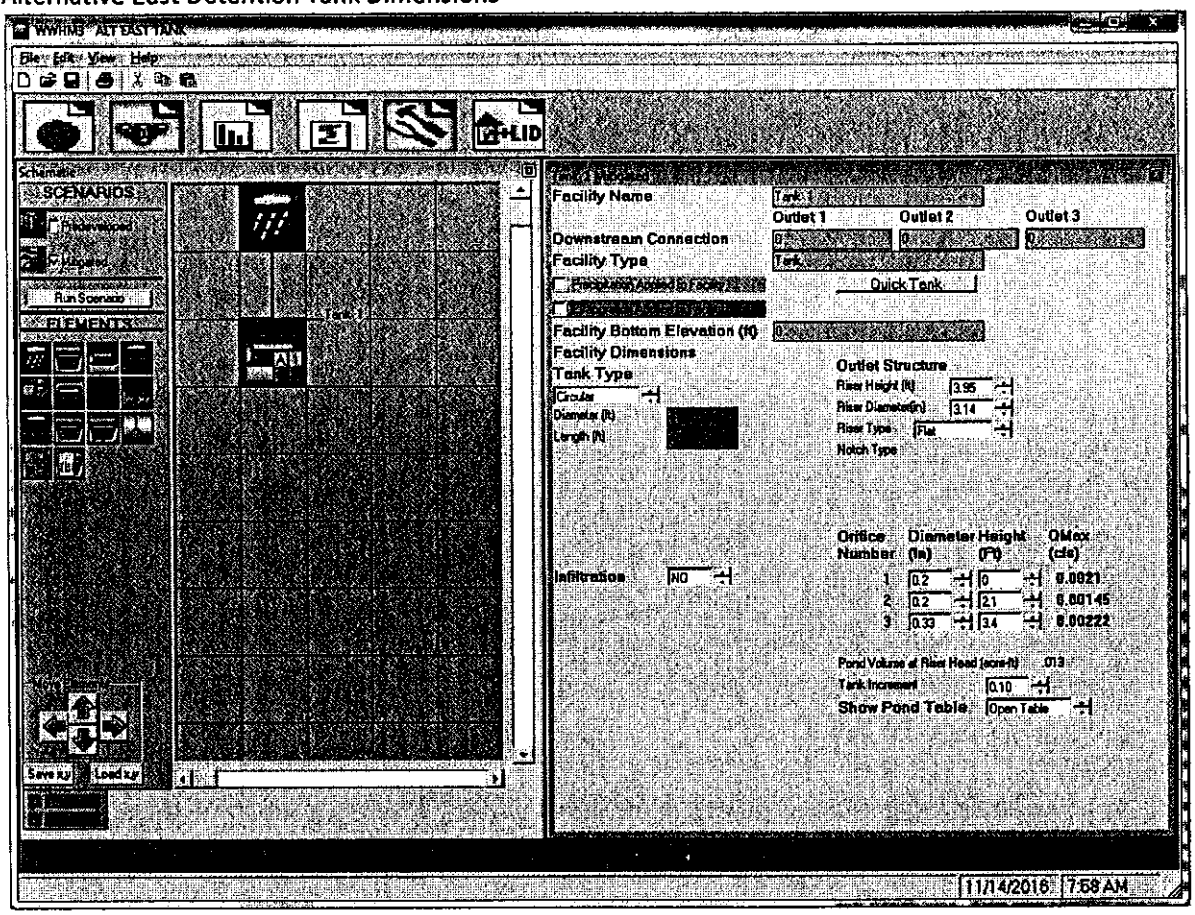
Predeveloped East Basin Characteristics



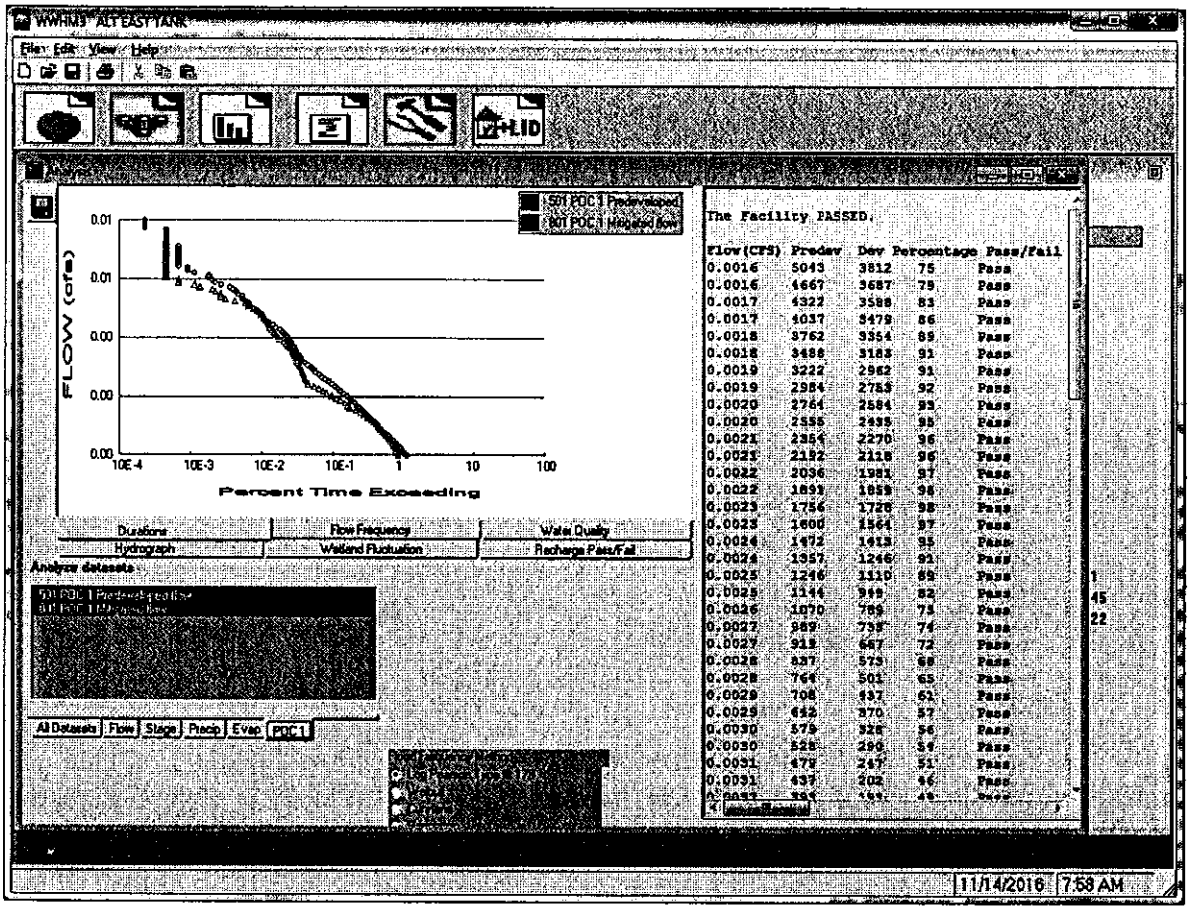
Proposed East Basin Characteristics



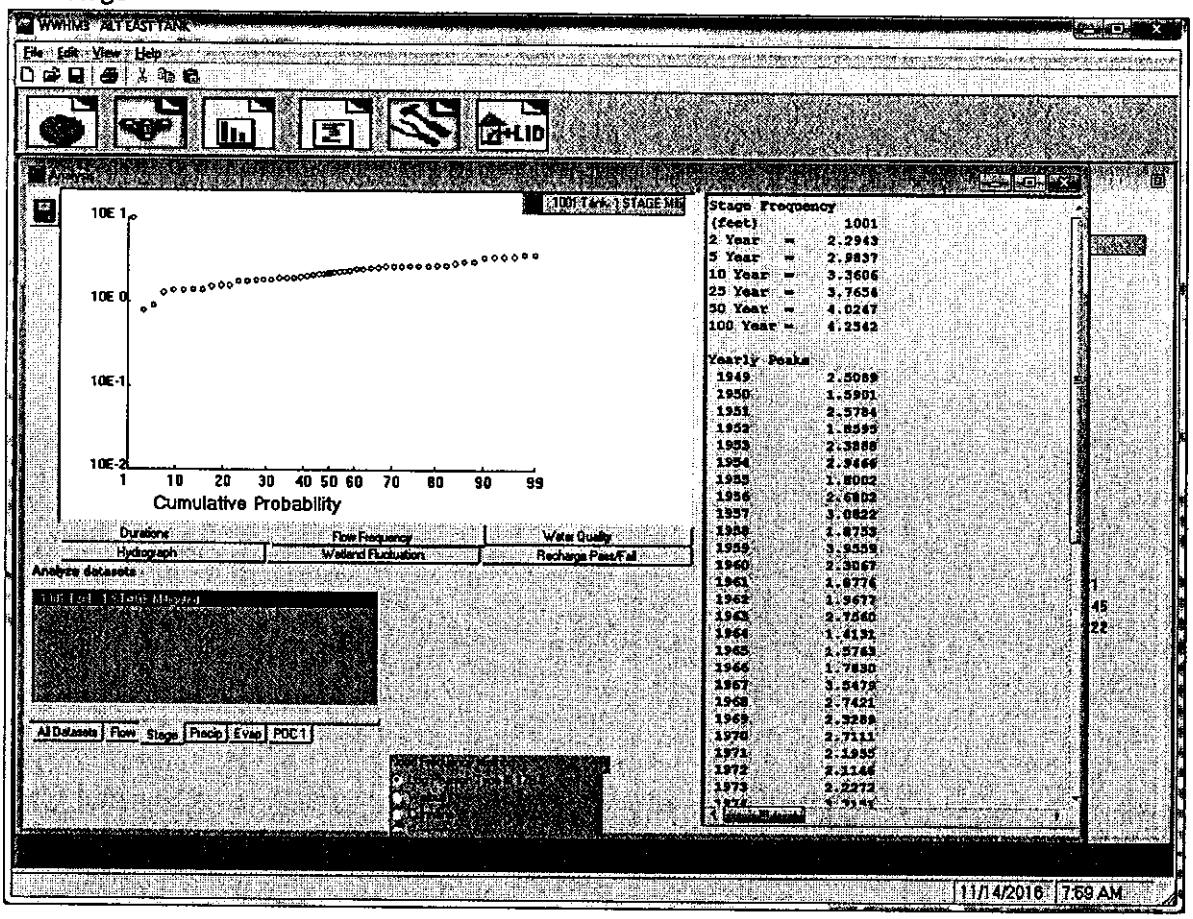
Alternative East Detention Tank Dimensions



Duration Criteria Performance



Peak Stage


WWHMS - ALT EAST TANK
File Edit View Help
+LID
10E 1
10E 0
10E-1
10E-2
1 10 20 30 40 50 60 70 80 90 99
Cumulative Probability
Durations
Flow Frequency
Water Quality
Hydrograph
Wetland Fluctuation
Recharge Peak/Fall
Analyze datasets
All Datasets
Flow
Stage
Precip
Evap
POC 1
Stage Frequency
(feet) 1001
2 Year = 2.2943
5 Year = 2.9837
10 Year = 3.3606
25 Year = 3.7656
50 Year = 4.0247
100 Year = 4.2542
Yearly Peaks
1949 2.5089
1950 1.5901
1951 2.5784
1952 1.8599
1953 2.3888
1954 2.9466
1955 1.8002
1956 2.6802
1957 3.0822
1958 1.8753
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1962 1.9673
1963 2.7560
1964 1.4131
1965 1.5763
1966 1.7830
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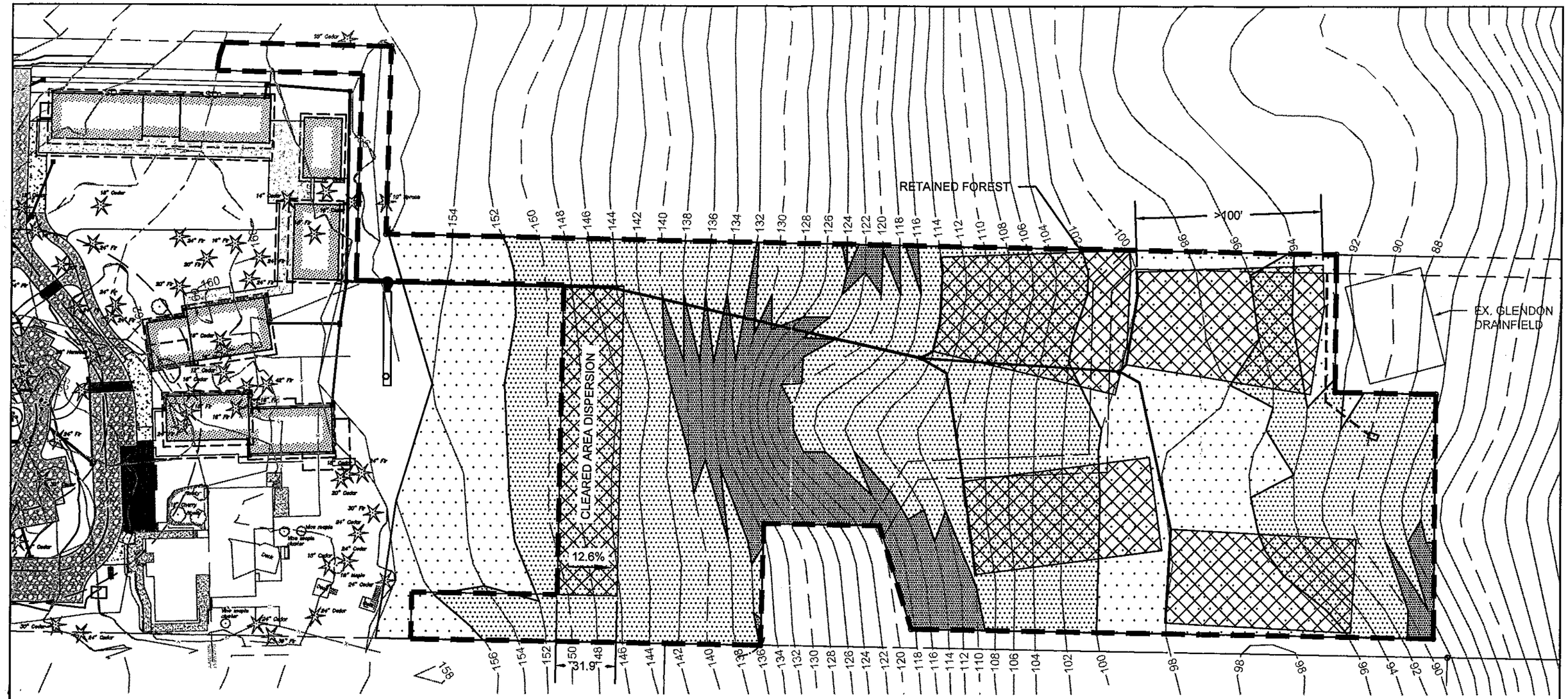


N

DISPERSION SITE

SCALE: 1" = 50'

0 10 25 50 100

CLEARED AREA DISPERSION
W = 25+(12.6%-8%)x1.5 = 31.9'

SLOPES 0-8%

SLOPES 8-20%

SLOPES >20%

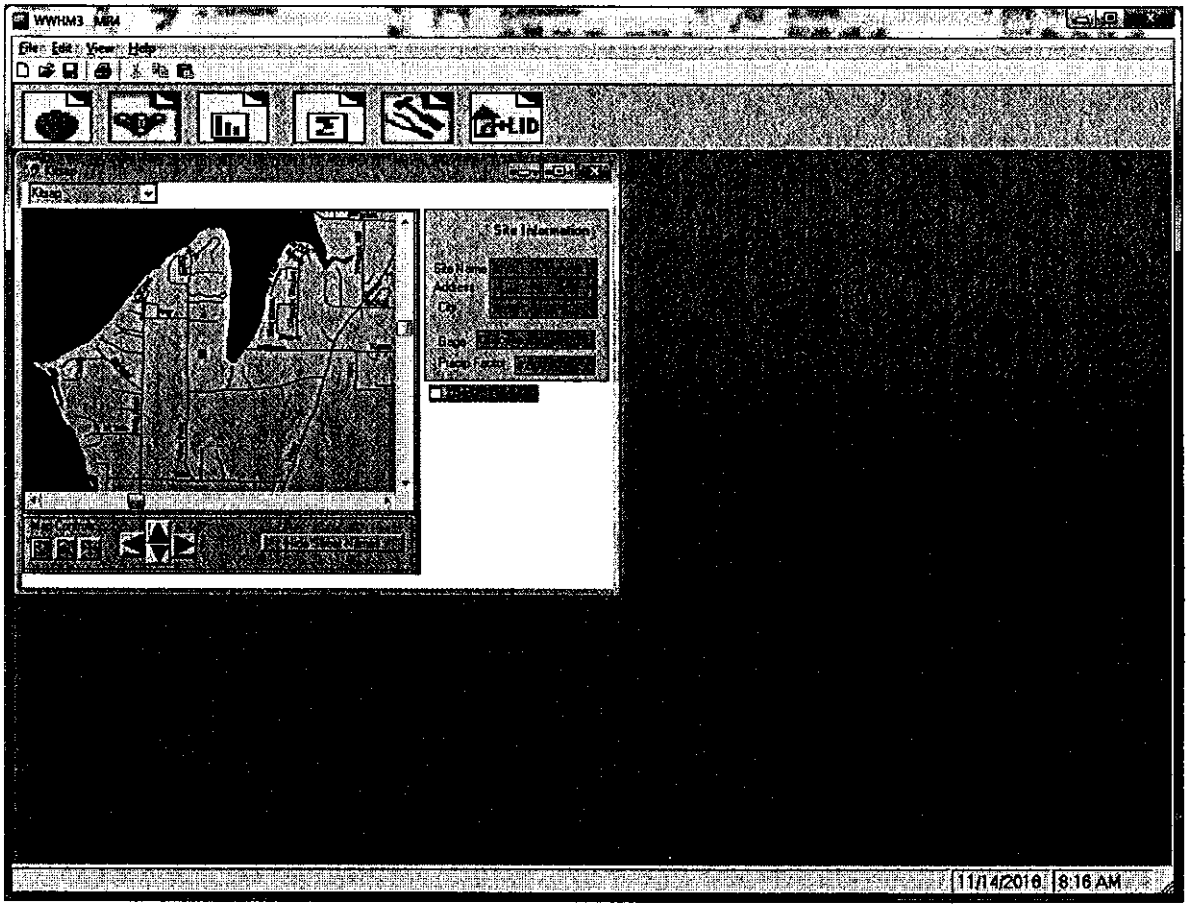
DISPERSION AREA

BROWNE • WHEELER
ENGINEERS, INC
241 ERICKSEN AVENUE NE
BAINBRIDGE ISLAND, WA 98110
P 206.842.0605 INFO@BrowneWheeler.COM

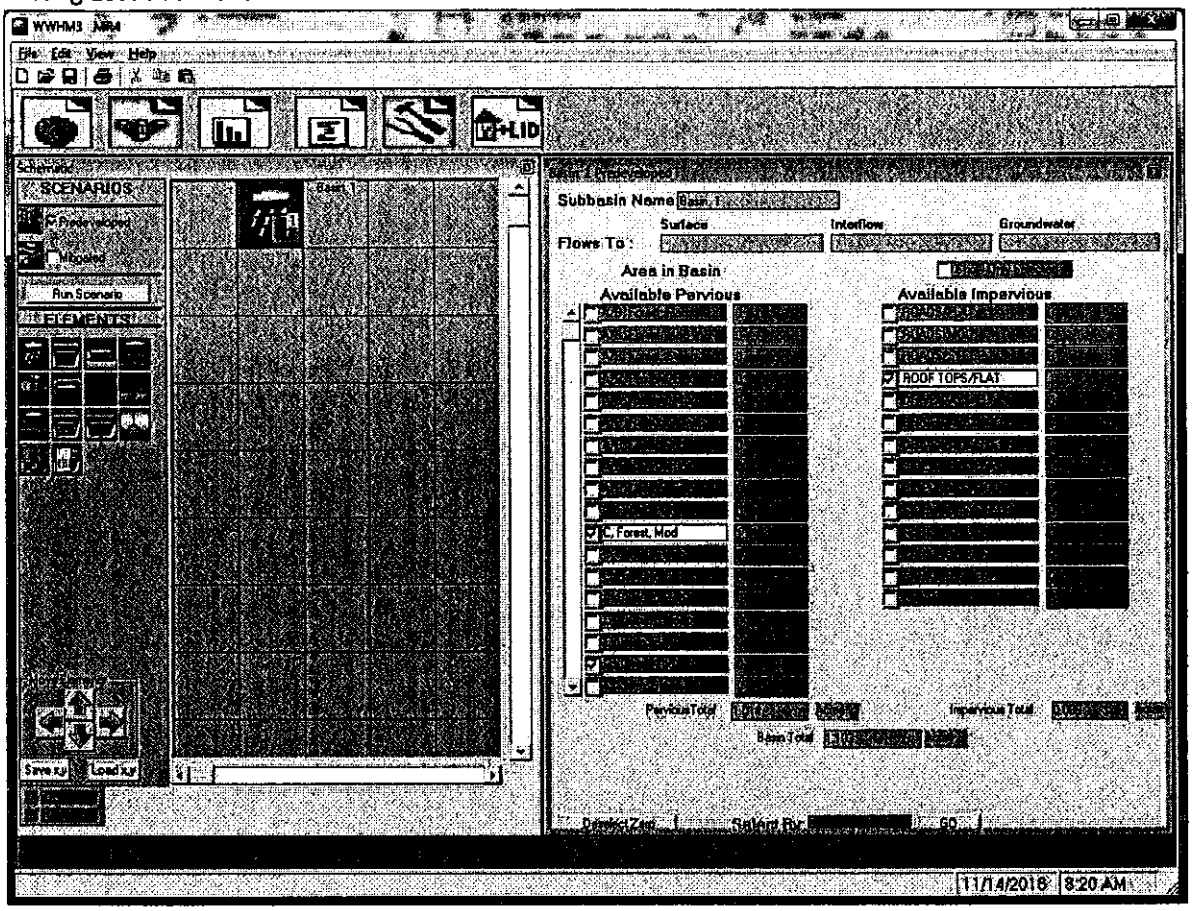
SITE SLOPES
MONTESSORI COUNTRY SCHOOL
CONDITIONAL USE PERMIT

FILE NAME: DISPERSION SLOPES NIKKI.DWG PLOT DATE: 11/14/2016 9:11 AM PLOT DEVICE: DWG TO PDF.PC3 PAGE SETUP: — PLOTTED BY: NIKKI

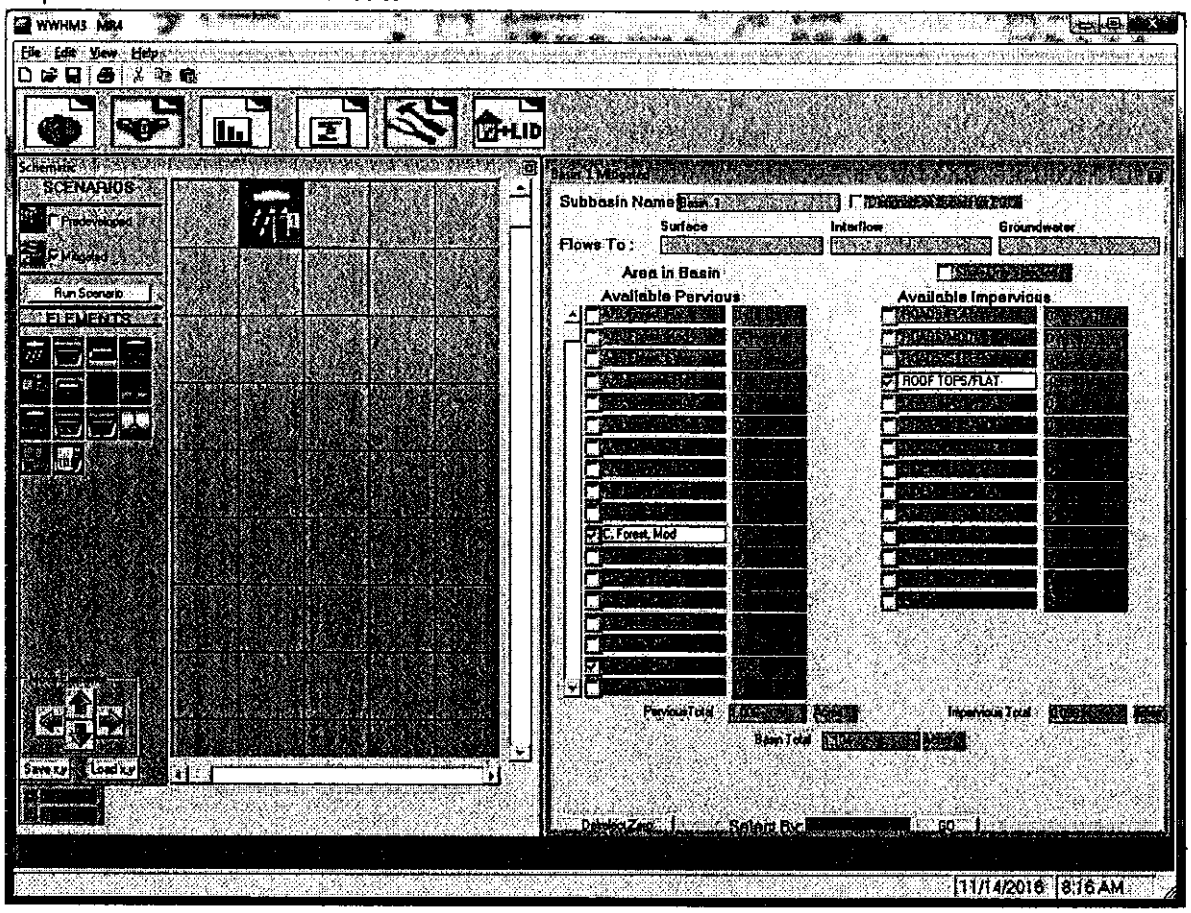
Proposed East Project Flow Rate for MR4 Evaluation


WWHM3_MR4
File Edit View Help
LID
Site Information
Site Name
Address
City
State
Parcel Number
11/14/2010
8:16 AM

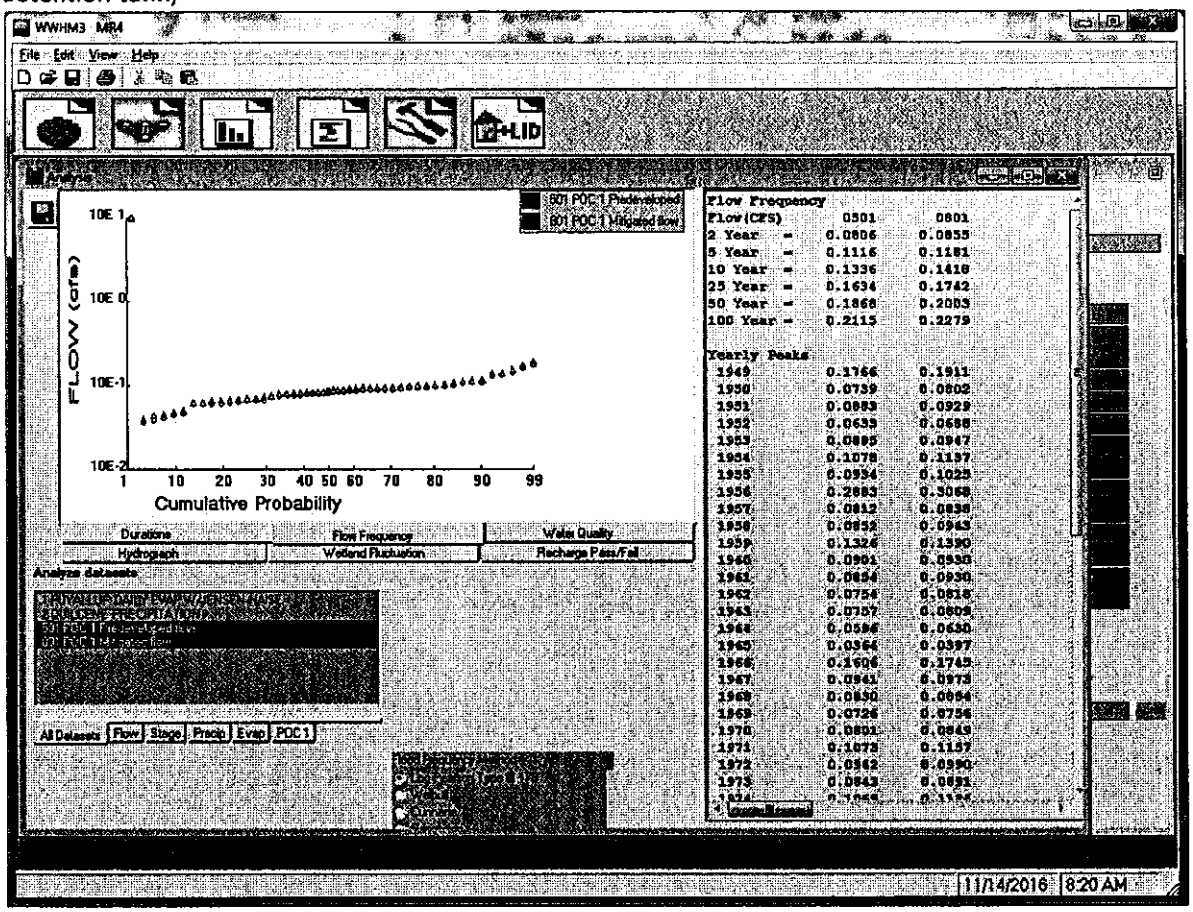
Existing East Basin Characteristics



Proposed East Basin Characteristics



Peak Discharge from Predeveloped and Developed East Basin with Proposed Mitigation (except the east detention tank)



MILLER BAY WATER CO.

DAVID MARTIN
598-3505

Box 138
Suquamish, WA 98392

Calculation/Work Sheet

Project _____ File _____

Made by _____ Ck By _____ Date _____ Page _____ Of _____

Nov. 11, 2016

To: Mr. Professor, Lowder Schoch

Re: Drainage Plan Order Effect on Existing Septic System (OSS) Disposal System
Sequim Tally No 177022-1-004-2100

1. Has Lowering the Perched Water Table Lower the Level of the Existing Field to Be Below Equal Level As But Reach Location of the OSS
2. Does Lowering the Water Table Cause the Installed Perforated Drainage Pipe to Fall Into the OSS Disposal Space
3. Will the Lowering Perforated Drain Pipe Cause Any Adverse Issues to the OSS System

David Martin

DAVID MARTIN
LICENSED DESIGNER

GEOTECHNICAL ENGINEERING REPORT

Montessori Country School - 10994 Arrow Point Drive NE, Bainbridge Island, Washington

Prepared for: Montessori Country School

Project No. 160130-01 • June 24, 2016

City of Bainbridge Island

NOV 14 2016

Planning and Community Development

REVISED

Aspect CONSULTING

earth + water

Aspect CONSULTING

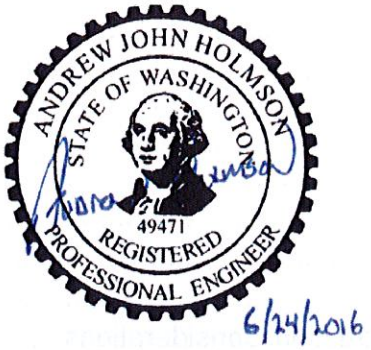
GEOTECHNICAL ENGINEERING REPORT

Montessori Country School - 10994 Arrow Point Drive NE, Bainbridge Island, Washington

Prepared for: Montessori Country School

Project No. 160130-01 • June 24, 2016

Aspect Consulting, LLC



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1 Introduction

This report presents the results of a geotechnical engineering study by Aspect Consulting, LLC (Aspect) for the Montessori Country School Expansion (Project), located at 10994 Arrow Point Drive NE on Bainbridge Island, Washington (Site, refer to Figure 1, *Vicinity Map.*

The purpose of the Project is to expand the existing school campus at the Site, including five new school buildings, improvements to the existing school building, and new pavement for driveways and parking areas. Other improvements will include a new on-Site septic system and a variety of low-impact development (LID) facilities for handling stormwater and drainage. We understand the LID facilities will infiltrate stormwater, where possible. All of the proposed improvements will be located in the western third of the Site, with the exception of the new on-Site septic drainfield, which is proposed near the middle of the Site.

The Site is currently partially developed with an access drive, existing school building, playfield, and on-Site septic system. The majority of the Site is heavily wooded and undeveloped.

This report summarizes the results of the completed field explorations and presents Aspect's geotechnical engineering conclusions and recommendations.

1.1 Scope of Services and Authorization

Our scope of work included gathering and reviewing existing geotechnical data near the Site; subsurface explorations; laboratory soils testing, completing geotechnical engineering analyses; and preparing this report. Our work was completed in general accordance with our agreed-upon scope of work with Montessori Country School, dated April 28, 2016.

1.2 Project Description

The Project will include a new school campus with the following Site improvements:

- A series of five new classroom buildings throughout the western third of the Site.
- A new through-access gravel driveway and parking area along the western edge of the Site with approximately 20 parking stalls.
- A new fire truck access lane (gravel) parallel to the through-access drive.
- A new grass playfield and courtyard between the classroom buildings.
- New stormwater management facilities and a new on-Site septic system in the eastern portion of the Site.

It is anticipated that the new building floors and foundations will be supported using slab-on-grade and spread-footing construction. Minor Site grading with cuts and fills on the order of 5 feet are anticipated, with Site retaining walls as required.

2 Site Conditions

The Site is irregular-shaped and oriented in a west-to-east direction. It is bordered by developed and undeveloped residential properties to the north, east, and south, and by Arrow Point Drive NE to the west.

2.1 Geologic Setting

The Site is located within the Puget Lowland, a complex tectonic environment and an area of tectonic subsidence flanked by two mountain ranges—the Cascades to the east, and the Olympics to the west. The sediments within the Puget Lowland result from repeated cycles of glacial and nonglacial deposition and erosion. During nonglacial cycles, the Puget Lowland was dominated by lowland forests and broad river valleys similar to the predevelopment Duwamish valley. During glacial cycles, ice sheets up to 3,000 feet thick occupied the Puget Lowland and carved out the deep marine waterways and river valleys, and sculpted the uplands. The existing ground surface morphology has been defined by the glacial processes associated with the Vashon Stade of the Fraser Glaciation Age, the most recent glacial activity in the Puget Lowland.

The available geologic mapping (Haugerud, 2005) indicates that subsurface conditions at the Site generally consist of Vashon till.

2.2 Surface Conditions

The Site is a partially developed parcel that is heavily wooded with secondary growth forest and is currently serving as the Montessori Country School campus. The existing school building and play area are located in the southwestern corner of the Site, and the existing on-Site septic system is located in the southern portion of the Site. The remainder of the Site is undeveloped and wooded.

The topography over the western third of the Site is flat to gently sloping. The middle and eastern third of the Site contain moderately steep slopes that slope down towards the east with inclinations ranging from 10 percent (6 degrees) to 40 percent (22 degrees). A limited area in the middle of the Site contains a short slope that is greater than 40 percent and is mapped by the City of Bainbridge Island (City) as a greater than 40 percent steep slope geologically hazardous area.

The maximum elevation is 160 in the western third of the Site, and the minimum elevation is 83 in the northeastern corner of the Site.

The existing Site topography and features are shown on Figure 2, *Site Exploration Map*.

2.3 Subsurface Conditions

2.3.1 Subsurface Explorations

Aspect explored and assessed the subsurface conditions at the Site through a series of test pits and hand auger borings. The test pits were dug by the Project contractor, under direction from Aspect, using a small tracked excavator. The hand auger borings were advanced by Aspect staff. Select samples were retained for further evaluation, observation, and lab testing.

We completed eleven test-pit excavations (designated TP-1 through TP-11) and four hand auger borings (HA-1 through HA-4) at the Site. The test-pit excavations were completed from 4.5 to 9 feet below ground surface (bgs). The hand auger borings were completed from 2 to 3 feet bgs.

The locations of the completed explorations are shown on Figure 2. Summary logs of the completed explorations, and more detailed descriptions of the subsurface exploration methodology, are provided in Appendix A.

2.3.2 Stratigraphy

From our review of Site surface and subsurface conditions, the mapped designation of Vashon till is generally correct. Specifically, two principal engineering/geologic units were encountered in all of the Site explorations; ice-contact deposits overlying Vashon till. A description of the location and general characteristics of each unit follows.

2.3.2.1 Ice-Contact Deposits

We encountered ice-contact deposits at the ground surface in each of the completed explorations at the ground surface and extending to depths between 1 and 5.5 feet bgs. The upper surface of the ice-contact deposits contains forest duff and a rooted zone that is typically 8 inches thick.

The ice-contact deposits typically consist of very loose to medium dense, slightly moist to moist, light brown to dark brown, gravelly, silty SAND (SM)[1] with numerous organics (rootlets, wood debris). We observed scattered zones of burnt wood debris (charcoal) within the ice-contact deposits, indicating the unit has been locally disturbed and reworked during previous Site-use activities.

The excavator had little difficulty excavating through the ice-contact deposits, which is indicative of loose to medium relative density. Probing with a ½-inch-diameter steel t-probe resulted in penetrations ranging from 4 to 32 inches, with typical penetrations on the order of 8 to 12 inches. Portable penetrometer soundings with the Dynamic Cone Penetrometer (DCPT[2]) measured blow counts ranged from 20 to 24 blows per 1.75 inches in the medium dense zones of the ice-contact deposits. Based on these qualitative and quantitative measurements, we characterize the ice-contact deposits as possessing moderate compressibility and low to moderate shear strength. Due to the significant fines (silt) content, the ice-contact deposits have moderate to high moisture sensitivity. Soils with high moisture sensitivity tend to degrade easily upon exposure to weather and disturbance. The ice-contact deposits have variable, low to moderate permeability characteristics.

2.3.2.2 Vashon Till

We encountered Vashon till underlying the ice-contact deposits in each of the completed explorations, at depths ranging from 1 to 5.5 feet bgs and extending as deep as 9 feet bgs.

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[1] Soil Classification per the Unified Soil Classification System (USCS). Refer to American Society for Testing and Materials (ASTM) D2488.

[2] The DCPT involves a 15-pound steel mass falling 20 inches to strike an anvil, which drives a 1.5-inch-diameter 45-degree cone into the soil. The number of blows required to drive the cone 1.75 inches is considered one data point. The DCPT data has been correlated with Standard Penetration Test (SPT) results to provide a more refined estimate of soil relative density and consistency.

All of the explorations were terminated in dense Vashon till soils. The Vashon till typically consists of medium dense to very dense, slightly moist to moist, brown to gray, gravelly, silty SAND (SM) with trace cobbles and small boulders. It is generally poorly sorted with a diamict texture, but typically includes some strata or lenses of moderately well-sorted sand and gravel. In HA-1 and HA-2, the surface of the Vashon till was very moist to wet.

DCPT blow counts from the explorations in the Vashon till were typically greater than 30 blows per 1.75 inches with t-probe penetrations of typically less than 1 inch. The Vashon till has very low compressibility and high shear strength characteristics. It also has moderate to high moisture sensitivity due to its significant fines content. The very dense nature and high fines content of the Vashon till results in very low permeability characteristics.

2.3.3 Groundwater Conditions

Based on our observations and measurements made at the time of our explorations, shallow groundwater is present in the eastern portion of the Site near the location of HA-2 at approximately Elevation 97. We did not encounter groundwater in the other explorations across the western portion of the Site. However, perched groundwater could develop at the interface of the low permeability Vashon till and overlying ice-contact deposits during and following wet weather conditions, as well as with variations in Site and nearby land-use activities.

3 Seismic Design Considerations

The Site is located in a seismically active area and is less than a mile north of the Seattle Fault zone, a shallow crustal tectonic structure that is considered active (meaning it has the potential to cause earthquakes in the future). The recurrence interval of earthquakes on this fault zone is believed to be on the order of a thousand years or more.

The Site also lies within the zone of strong shaking from subduction zone earthquakes. The recurrence interval of these earthquakes is thought to be on the order of about 500 years. The most recent subduction zone earthquake occurred in 1700.

Deep intraslab earthquakes also occur in the region every decade or two, including the 2001 Nisqually earthquake. These earthquakes are generally less severe than the shallow crustal and subduction zone earthquakes, but have the potential to cause damage to older structures built before modern seismic codes were enacted, and those in liquefaction-sensitive areas.

In our opinion, design of the new structures in accordance with the current version of the International Building Code (IBC) will mitigate seismic hazards to acceptable risk levels.

3.1 Surficial Ground Rupture

The nearest known active fault trace is a structure associated with the Seattle Fault zone. Recent studies made by the United States Geological Survey (USGS; e.g., Johnson et al., 1994; Johnson et al., 1999) suggest that this northern trace of the east-west trending Seattle Fault Zone projects in the vicinity of Eagle Harbor on Bainbridge Island, approximately 3 miles south of the Site. Due to the suspected long recurrence interval of the fault zone, and the offset of the Site from the known preferred rupture surface, the potential for surficial ground rupture at the Site is considered low during the expected life of the improvements.

3.2 Liquefaction

Due to the inherent density and grain-size distribution of the near-surface Vashon till soils underlying the Site, the liquefaction potential for the soils at the Site is extremely low. As such, liquefaction and associated hazards are not design considerations for this Site.

3.3 Ground Response

IBC code-based seismic design is based on the "Maximum Considered Earthquake (MCE)" with a 2-percent probability of exceedance (PE) in 50 years (2,475-year return period). The USGS (USGS, 2008) has completed probabilistic ground motion studies and maps for Washington.

Current IBC design methodologies express the effects of site-specific subsurface conditions on the ground motion response in terms of the "Site Class." The Site Class can be correlated to the average density in the upper 100 feet of the soil profile. Based on the results of our subsurface exploration program, our regional experience with the geologic

materials underlying the Site, and the 2012 IBC criteria, the Site would be conservatively characterized as Seismic Site Class C.

The mapped MCE spectral response accelerations are for short period (S_s) = 1.372*g*; and for 1-second period (S_1) = 0.542*g*. Site coefficients for this Site are F_a = 1.0 and F_v = 1.3. The MCE spectral response accelerations adjusted for site class effects are S_{ds} = 0.915*g* and S_{d1} = 0.470*g*.

4 Conclusions and Recommendations

Key geotechnical considerations for the proposed project include earthwork, structure foundation design and subgrade preparation, stormwater management, and pavement design.

Material specifications recommended in this section of the report reference the 2016 Washington State Department of Transportation (WSDOT) *Standard Specifications for Road, Bridge and Municipal Construction* (WSDOT, 2016); herein referred to as the Standard Specifications.

4.1 Geologically Hazardous Area Considerations

The middle portion of the Site contains a short, steep slope that is mapped by the City as a greater than 40 percent steep slope geologically hazardous area. The steep slope section has no individual section greater than 10 feet in height. The results of our reconnaissance indicate that the slope is relatively stable; no emerging groundwater seepage was observed, and no adverse permeable/impermeable geologic strata sequence was evident.

Based on these observations, it is our opinion that the slope is not a geologically hazardous area.

4.2 Earthwork

Based on the explorations performed across the Site and our understanding of the Project, it is our opinion that the Contractor should be able to complete planned excavations with standard construction equipment. We encountered cobbles and boulders within the Vashon till unit, and the Contractor should be prepared to handle such oversized materials. Based on our regional experience, buried debris related to past logging activities including logs and debris piles may be encountered near the ground surface during construction.

The Site is covered with a veneer of organic-rich forest duff with a typical thickness of 8 inches; therefore, stripping and grubbing will be required to an average depth of 8 to 10 inches. Localized areas near established tree stumps and in topographic depressions will require additional stripping depths.

We recommend that earthwork activities be specified in accordance with the following Standard Specifications (WSDOT, 2016) except where specifically addressed in this report. Appropriate temporary erosion control measures should be in accordance with local best management practices (BMPs), and should be implemented prior to beginning earthwork activities.

4.2.1 Temporary and Permanent Erosion Control

Due to the gently sloping topography in the vicinity of the proposed improvements, erosion hazard across the Site is low. Based on the results of our explorations and reconnaissance, and within the context of the proposed Site improvements, the erosion hazard at the Site does not warrant specific buffers or setbacks from the Site slopes

and/or property boundaries provided temporary and permanent erosion control is accomplished as recommended herein.

To prevent Site erosion during construction, appropriate temporary erosion and sedimentation control (TESC) measures should be used in accordance with the recommendations above and the local BMPs. Specific TESC measures may include appropriately placed silt fencing, straw wattles, rock check dams, and plastic covering of exposed slope cuts and soil stockpiles. Outside of the proposed construction areas, the existing vegetation should be retained.

Permanent erosion control within the areas of construction should be achieved through pavement surfacing or the reestablishment of vegetation. In our experience, successful erosion-related vegetation management strategies aim to maximize the root reinforcement, evapotranspiration/rain interception, and buttressing properties of low-lying vegetation and shrubs while minimizing surcharge loads, root wedging, and windthrowing typically associated with larger tree species.

Areas on/near the Site slopes exposed to construction activities should be aggressively revegetated. Depending on the weather patterns, slope inclination, and degree of disturbance, the placement of an erosion control blanket to provide temporary ground cover while vegetation takes root or the use of live-staking may be required to ensure successful establishment of new vegetation.

Any irrigation should be installed above ground for ease of inspection and with easily accessible shutoff valves for winterizing. At no time should uncontrolled runoff or surface water be allowed to flow across the Site slopes.

4.2.2 Temporary Excavation Stability

Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor. All temporary cuts in excess of 4 feet in height that are not protected by trench boxes, or otherwise shored, should be sloped in accordance with Part N of Washington Administrative Code (WAC) 296-155 (WAC, 2009).

The ice-contact deposits across the Site classify as Occupational and Safety Health Administration (OSHA) Soil Classification Type B, and the Vashon till soils classify as Type A. Temporary excavation cut slopes should be sloped no steeper than 1H:1V (horizontal:vertical) in the ice-contact deposits and no steeper than 0.75H:1V in the Vashon till soils. The estimated maximum cut-slope inclination is applicable to excavations without groundwater seepage, or runoff, and assume dewatered conditions. Flatter slopes will likely be necessary in areas where groundwater seepage exists, or where construction equipment surcharges are placed in close proximity to the crest of the excavation.

With time and the presence of seepage and/or precipitation, the stability of temporary unsupported cut slopes can be significantly reduced. Therefore, all temporary slopes should be protected from erosion by installing a surface water diversion ditch or berm at the top of the slope. In addition, the Contractor should monitor the stability of the temporary cut slopes, and adjust the construction schedule and slope inclinations accordingly. Vibrations created by traffic and construction equipment may cause caving

and raveling of the temporary slopes. In such an event, lateral support for the temporary slopes should be provided by the Contractor to prevent loss of ground support.

Permanent cut and fill slopes for the Project should be no steeper than 2H:1V.

4.2.3 Wet Weather Earthwork

The Site soils are moisture sensitive and will be difficult to handle, prepare, or compact during wet weather. Earthwork will be more efficient when performed under dry weather conditions. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications:

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean structural fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance;
- Material used as structural fill should consist of clean, granular soil containing less than 7 percent fines, such as Gravel Borrow as specified in Section 9-03.14(1) of the Standard Specifications (WSDOT, 2016). The fines should be nonplastic;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller (or equivalent), and under no circumstances should be left uncompacted and exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;
- Excavation and placement of fill should be observed by the Geotechnical Engineer to verify that all unsuitable materials are removed and suitable compaction is achieved; and
- Local BMPs for erosion protection should be strictly followed.

4.2.4 Structural Fill and Compaction

Structural fill is anticipated to be required for the grade adjustments and for utility trench backfill. The ice-contact deposits at the ground surface are not suitable for reuse as structural fill due to the high content of organics and other deleterious materials. The ice-contact deposits can be used as fill in unimproved areas (i.e., landscaped areas) that are not susceptible to differential settlement over time. The Vashon till may be suitable for reuse as structural fill, provided the material can be processed into small (gravel-size or less) particle sizes and moisture-conditioned for compaction. An Aspect geotechnical engineer should be engaged to observe and evaluate any on-Site soil proposed for reuse as structural fill.

Imported structural fill should consist of granular soil that is relatively free of organics and other deleterious materials. We recommend Select Borrow, as specified in Section 9-03.14(2) of the Standard Specifications (WSDOT, 2016), be used for general imported structural fill.

Class A Gravel Backfill for Foundations as specified in Section 9-03.12(1)A of the Standard Specifications (WSDOT, 2016) should be used for base rock underneath structures. Crushed Surfacing Base Course (CSBC) as specified in Section 9-03.9(3) of the Standard Specifications (WSDOT, 2016) should be used as base rock for new pavement. If desired, lean concrete or controlled density fill (CDF) can also be used as structural fill.

Structural fill should be at or near optimum moisture content at the time of placement, and should be compacted to at least 95 percent of the maximum dry density (MDD) as determined by test method American Society of Testing and Materials (ASTM) D1557. In new pavement areas where the fill is placed more than 2 feet below the proposed finished grade, compaction to at least 90 percent of MDD should be achieved with the upper foot of structural fill beneath the pavement compacted to at least 95 percent of MDD. In nonstructural areas, fill should be placed and compacted to a moderately firm/dense condition.

Within a lateral distance of 5 feet of any wall, smaller, possibly hand-operated equipment should be used in conjunction with thinner soil lifts to achieve the required compaction, so as not to damage the structure. In these areas, compaction should be limited to 90 percent of the MDD to avoid wall damage.

The procedure to achieve the specified minimum relative compaction depends on the size and type of compacting equipment, the number of passes, thickness of the layer being compacted, and certain soil properties. When size of the excavation restricts the use of heavy equipment, smaller equipment can be used, but the soil must be placed in thin-enough lifts to achieve the required compaction. A sufficient number of in-place density tests should be performed as the fill is placed to verify the required relative compaction is being achieved. The frequency of the in-place density testing can be determined at the time of final design, when more details of the Project grading and backfilling plans are available.

Generally, loosely compacted soils are a result of poor construction technique or improper moisture content. Soils with a high percentage of silt or clay are particularly susceptible to becoming too wet, and coarse-grained materials easily become too dry, for proper compaction. Silty or clayey soils with a moisture content too high for adequate compaction should be dried as necessary, or moisture conditioned by mixing with drier materials, or other methods.

4.2.5 Construction Dewatering

Trenching for new utilities and excavations for Site grading may encounter shallow groundwater within the ice-contact deposits. The Contractor should dewater the utility trench excavations, so that the appropriate bedding can be placed in dry conditions. We anticipate that strategically placed sumps and pumps will sufficiently control water from inside the trench excavations. Sumps are often constructed by placing a short section of perforated corrugated steel pipe (or surplus 8- to 12-inch well screen) in a small hole excavated below the trench bottom elevation. The annular space around the pipe is backfilled with drain rock, with several inches placed inside the casing to help control the pumping of fines. Submersible pumps (trash pumps) are then placed inside the casing and connected to a central discharge pipe.

The Contractor should be responsible for design, implementation, and any necessary permits associated with any construction dewatering system used for the Project.

4.3 Foundations

Although the current project plans are conceptual, the following general foundation criteria are provided. Spread footings and/or structural slabs may be used for building support. Bearing surfaces for the footings should be prepared as described below.

4.3.1 Site Preparation

Site preparation within the proposed foundation areas should include removal of all topsoil, debris, ice-contact deposits, and any other deleterious materials. Based on our completed explorations and understanding of the proposed structure locations, the removal of the ice-contact deposits in select areas will require excavations on the order of 3 feet bgs, in order to reach the suitable bearing stratum of native, undisturbed, and dense Vashon till.

The on-Site soils contain variable amounts of fine-grained particles, which makes them moisture sensitive and subject to disturbance when wet. The Contractor must use care during Site preparation and excavation operations, so that any bearing surfaces are not disturbed. If this occurs, the disturbed material should be removed to expose undisturbed material.

All bearing surfaces should be trimmed neat, and carefully prepared. All loose or softened soil should be removed from the bearing surface prior to placing concrete, structural fill, or capillary break materials. We recommend that all bearing surfaces be observed by the Geotechnical Engineer to verify that the recommendations of this report have been followed.

If bearing surfaces are open during the winter season or periods of wet weather, it may be helpful to provide a layer of crushed rock or gravel to help preserve the subgrade. If gravel is used to protect the bearing surfaces, it should meet the gradation requirements for Class A Gravel Backfill for Foundations, as described in Section 9-03.12(1)A of the Standard Specifications (WSDOT, 2016).

4.3.2 Foundation Design Criteria

Based on our observations of the Site soil conditions, the bearing stratum of dense, undisturbed Vashon till is approximately 1.5 to 3 feet bgs. The overlying loose ice-contact deposits and any other deleterious debris should be removed from the footprint of the new structures.

For spread footings, an allowable foundation bearing pressure of 3,000 pounds per square foot (psf) may be utilized for design purposes, including both dead and live loads for the proposed structures. An increase in the above-mentioned bearing pressure of one-third may be used for short-term wind or seismic loading. Perimeter footings should be buried at least 18 inches into the surrounding soil for frost protection; interior footings require only 12 inches burial below adjacent finished grade. No footing should be founded in or above yielding/loose or organic soils.

We estimate the total settlement of the foundation designed in accordance with our recommendations will be less than 1 inch. Differential settlements can be expected to be less than half the total settlement. The majority of these settlements will occur during construction as the loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil, and passive earth pressure against the buried portions of the structure. For use in design, an ultimate coefficient of friction of 0.70 may be assumed along the interface between the base of the footing and subgrade soils. An ultimate passive earth pressure of 450 pounds per cubic foot (pcf) may be assumed for undisturbed soils adjacent to below-grade elements. The upper 1 foot of passive resistance should be neglected in design, unless the ground is protected/surfaced by pavement. The recommended coefficient of friction and passive pressure values are ultimate values that do not include a safety factor. We recommend applying a factor of safety of at least 1.5 in design for determining allowable values for coefficient of friction and passive pressure.

4.3.3 Slabs-on-Grade

Concrete slabs-on-grade should be designed in accordance with the American Concrete Institute (ACI) Committee *360 Guide to Design of Slabs-on-Ground* (ACI, 2010) We recommend slab subgrade preparation include the removal of any modified land such as buried log or debris piles, or other deleterious matter, and replacement with structural fill. We recommend all floor slabs should also be underlain by a capillary break consisting of at least 6 inches of free-draining, crushed rock or well-graded sand and gravel compacted to at least 95 percent MDD. The capillary break material should have a maximum particle size of 3/4 inch, not more than 80 percent passing the No. 4 sieve and less than 5 percent fines (material passing the U.S. Standard No. 200 sieve). In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structures, a 10-mil polyethylene vapor barrier should be placed directly over the capillary break. The vapor barrier should be installed in accordance with the manufacturer's recommendations.

For slabs designed as a beam on elastic foundation, a modulus of vertical subgrade reaction of 150 pounds per cubic inch (pci) may be utilized.

4.4 Wall Considerations

Based on our Project understanding, no basement structures are planned. However, the grade differentials across the Site may necessitate low retaining walls.

Yielding walls, such as cantilever retaining walls, should be designed using a lateral earth pressure based on an equivalent fluid having a unit weight of 35 pcf. Nonyielding or restrained walls should be designed for an equivalent fluid weight of 55 pcf. A level backslope and adequate drainage is assumed for the recommended earth pressure values. Adequate drainage should consist of a subsurface drain combined with a free-draining wall backfill material that meets the gradation requirements described in Section 9-03.12(2) of the Standard Specifications for Gravel Backfill for Walls (WSDOT, 2016) should be utilized. Refer to Section 4.5, *Drainage Considerations,* of this report for detailed subsurface drain recommendations.

Earthquake shaking will subject Site walls to a temporary additional earth pressure. We estimated the lateral seismic soil pressure increment using the Mononobe-Okabe method, with consideration of the possible backfill soil properties and MCE. We recommend an average seismic soil pressure increment of 8H (where H is the height of the wall) represented by a uniform rectangular pressure along the exposed height of the wall.

Overcompaction of the backfill behind walls should be avoided. In this regard, we recommend compacting the backfill to about 90 percent of MDD (ASTM D1557). Heavy compactors and large pieces of construction equipment should not operate within 5 feet of any embedded wall to avoid the buildup of excessive lateral pressures. Compaction close to the walls should be accomplished using hand-operated vibratory plate compactors.

Lateral forces that may be induced on the wall due to other surcharge loads should be considered by the Structural Engineer.

4.5 Drainage Considerations

The outside edge of all perimeter footings and embedded walls should be provided with a drainage system consisting of a 4-inch-diameter, perforated, rigid pipe embedded in free-draining gravel meeting the requirements of Section 9-03.12(4) of the Standard Specifications for Gravel Backfill for Drains (WSDOT, 2016). The footing and wall drains should be a minimum of 1 foot thick, and a layer of low permeability soils should be used over the upper foot of the drain section to reduce potential for surface water to enter the drain curtain. Prefabricated drain mats combined with relatively free-draining backfill may be used as an alternative to washed-rock footings and wall drains.

Final grades around the proposed structures should be sloped such that surface water drains away from the structures. Downspouts and roof drains should not be connected to the foundation drains in order to reduce the potential for flooding foundation drains and clogging. The footing drains should include cleanouts to allow for periodic maintenance and inspection.

4.6 Stormwater Infiltration

The Vashon till underlying the Site is essentially impervious. Large-scale, concentrated stormwater infiltration is not feasible. To the extent possible, we recommend stormwater management be accomplished using LID methods, such as widespread dispersion and small rain gardens. This approach should be combined with and supplement conventional methods including catch basins, storm drain pipes, and detention facilities.

The design of any LID dispersion/infiltration facilities should take into account the shallow depth to the top of the impermeable Vashon till across the area of the proposed development, which ranged from 2 to 5.5 feet bgs in our explorations. If sufficient vertical separation (between the proposed infiltration receptor and the top of the restrictive layer) cannot be met, we recommend investigating raising the grade using relatively clean and freely-draining sand and gravel fill, to help satisfy the vertical separation requirements.

Infiltration will primarily be into the ice-contact deposits. Based on the results of the completed grain size testing, the ice-contact deposits have an average fines content of 13.8 percent, an average D10 value of 0.06 mm, and a United States Department of Agriculture (USDA) textural classification as a loamy sand. Using grain size correlations and the USDA textural classification method presented in the 2005 *Stormwater Management Manual for Western Washington* (Ecology, 2005), we recommend using a long-term design infiltration rate of 0.5 inches per hour for the ice-contact deposits.

4.7 Access Roadway Design and Construction Considerations

We understand that gravel roads and parking areas are proposed for the Project. In nonroadway and nonbus/heavy traffic parking areas, a gravel section consisting of 8 inches of CSBC is recommended. However, along access drives or in the areas of bus parking, we recommend a minimum section 12 inches of CSBC. We recommend CSBC for the primary gravel base course, and Crushed Surfacing Top Course (CSTC) may be used over the CSBC for the upper 2 to 3 inches of the gravel section. CSBC and CSTC should be as specified in Section 9-03.9(3) of the Standard Specifications (WSDOT, 2016).

Over time, gravel roadways and parking areas will rut and degrade, requiring routine maintenance and regular resurfacing to supplement the gravel section.

Within the footprint of proposed gravel roads and parking areas, any loose and/or organic-rich soils should be removed. Gravel road sections should either gain support from undisturbed, dense, Vashon till or from structural fill placed directly over the Vashon till. All road subgrades should be carefully prepared. Prior to placing base course and pavement, all road subgrades should be proof-rolled with a fully loaded 10-cubic-yard dump truck or equivalent. The Geotechnical Engineer (or other qualified geo-inspector) should observe and evaluate the proof-rolling operation. Any soft areas detected by the proof-rolling or other methods should be compacted in-place or overexcavated to firm ground and backfilled with compacted structural fill to the design subgrade elevation.

Proper drainage is essential to long-term road and parking area performance. We recommend providing all roads and parking areas with positive drainage to remove surface water and water within the base course.

5 Additional Services

At the time of this report, Site grading, utilities, civil plans, and construction methods have not been finalized, and the recommendations presented herein are based on preliminary Project information. If Project developments result in changes to the assumptions made herein, we should be contacted to determine if our recommendations should be revised.

This report is issued with the understanding that the information and recommendations contained herein will be brought to the attention of the appropriate design team personnel and incorporated into the Project plans and specifications, and the necessary steps will be taken to verify that the Contractor and subcontractors carry out such recommendations in the field. We do not direct the Contractor's operations, and we cannot be responsible for the safety of personnel other than our own on the Site; the safety of others is the responsibility of the Contractor. The Contractor should notify the owner if he considers any of the recommended actions presented herein unsafe.

During construction we are available to provide continuing geotechnical consultation, field monitoring, and materials testing services as required. The integrity of the constructed product depends on proper Site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent.

6 References

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Washington State Legislature, 2009, Washington Administrative Code (WAC), April 1, 2009.

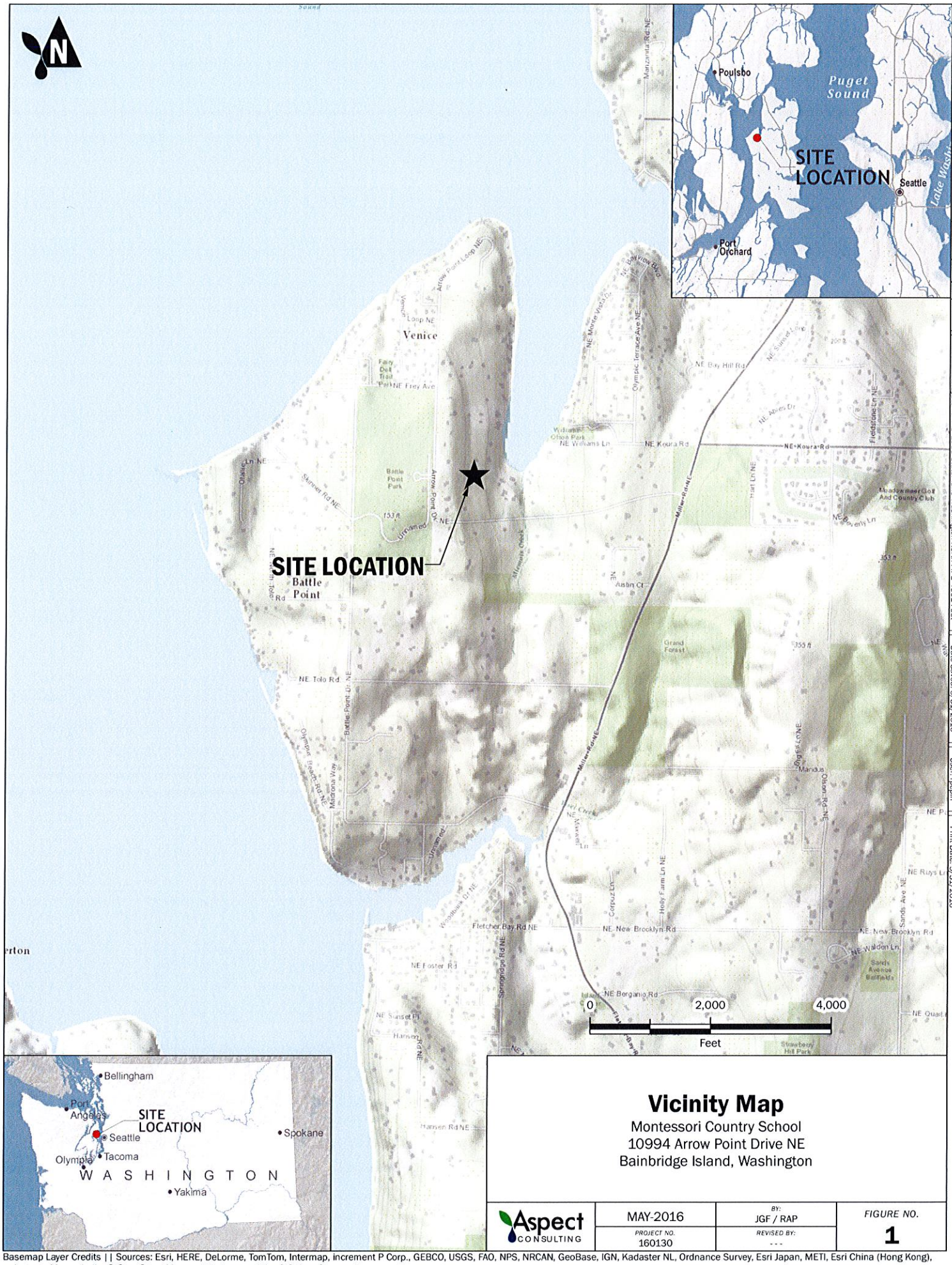
7 Uncertainty and Limitations

Work for this Project was performed for Montessori Country School (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. Experience has shown that subsurface soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations and may not be detected by a geotechnical study. Further geotechnical evaluations, analyses, and recommendations may be necessary for the final design of this Project. Our scope of work also excludes the assessment of environmental characteristics, particularly those involving potentially hazardous substances in soil or groundwater. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

If there is a substantial lapse of time between the submission of this report and the start of construction, or if any soil conditions are encountered at the Site that are different from those described in this report, we should be notified immediately to review the applicability of our conclusions and recommendations.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

FIGURES



Vicinity Map

Montessori Country School
10994 Arrow Point Drive NE
Bainbridge Island, Washington

Aspect CONSULTING	MAY-2016	BY: JGF / RAP	FIGURE NO.
	PROJECT NO. 160130	REVISED BY: - - -	1

GIS Path: T:\projects_8\Montessori Country School 160130\Delivered\Vicinity Map.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 5/31/2016 || User: rpepin || Print Date: 5/31/2016

Basemap Layer Credits || Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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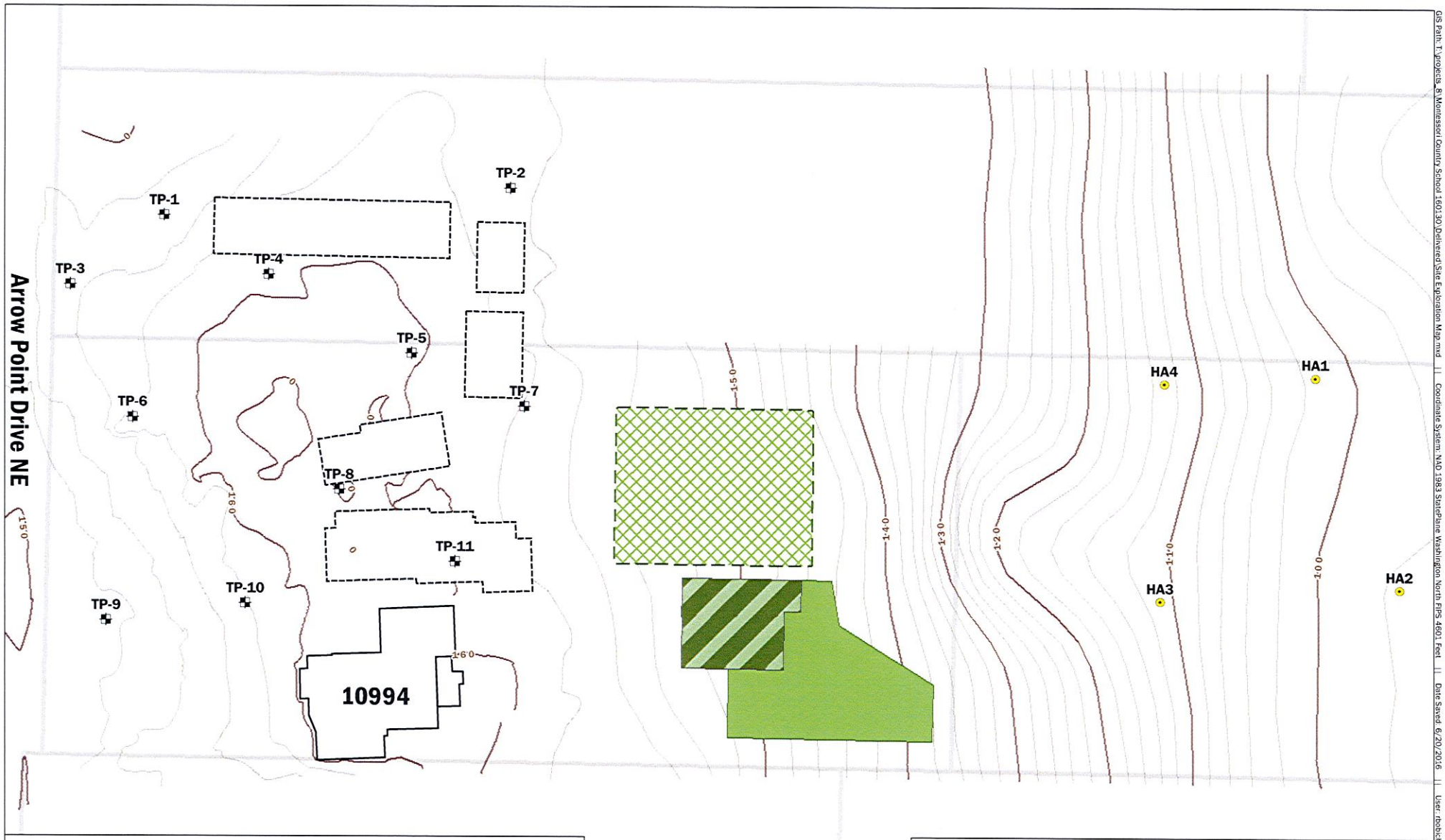


Hand Auger

Test Pit

Existing Building

Proposed Building

Proposed Drainfield Area

New Reserve Drainfield Area

Existing CSS Drainfield (to be abandoned)

Tax Parcel

N

0 70 140

Feet

Site Exploration Map

Montessori Country School
10994 Arrow Point Drive NE
Bainbridge Island, Washington

Aspect CONSULTING

JUN-2016	BY: JGF / RAP	FIGURE NO.
PROJECT NO. 160130	REVISED BY: ---	2

GIS Path: T:\projects_8\Montessori Country School 160130\Delivered\Site Exploration Map.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 6/20/2016 || User: rbobich || Print Date: 6/20/2016

APPENDIX A

Subsurface Exploration Methodology and Logs

A. Field Exploration Program

A.1. Test Pits

Test pits TP-1 through TP-11 were excavated using a Kubota KX 057-4 mini trackhoe. The excavation was completed by the Project Contractor, PHC Construction, under the direction of Aspect. Hand auger borings, HA-1 through HA-4, were advanced in the eastern portion of the Site by Aspect staff using hand tools.

Samples were obtained from select soil units to aid in the determination of engineering properties of the subsurface materials. The relative density/consistency of the soils was evaluated qualitatively with a 0.5-inch-diameter steel t-probe and observation of digging difficulty. Relative density was quantitatively assessed with DCPT at various depth intervals within the test pits. The test pits and hand auger borings were backfilled with the native soils and the backfill within the test pits was compacted with the excavator bucket in 1-foot-thick lifts. The locations of the test pits and hand borings are shown on Figure 2.

Detailed descriptions of the subsurface conditions encountered in our explorations, as well as the depths where characteristics of the soils changed, are indicated on the soil test-pit and hand auger logs presented here in Appendix A. The depths indicated on the log where conditions changed may represent gradational variations between soil types. Soils were classified in general accordance with the American Society for Testing and Materials (ASTM) D2488, *Standard Practice for Description and Identification of Soils (Visual and Manual Procedure).* A key to the symbols and terms used on the logs is provided on Figure A-1.

Coarse-Grained Soils - More than 50% (1) Retained on No. 200 Sieve	Gravels - More than 50% (1) of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines (5)	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		≥15% Fines (5)	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands - 50% (1) or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines (5)	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		≥15% Fines (5)	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine-Grained Soils - 50% (1) or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay
			OL	Organic clay or silt of low plasticity
	Silts and Clays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt
			CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

	Density	SPT (2) blows/foot
Coarse-Grained Soils	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50

	Consistency	SPT (2) blows/foot
Fine-Grained Soils	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

FC = Fines Content
G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Consolidation
DD = Dry Density
K = Permeability
Str = Shear Strength
Env = Environmental
PiD = Photoionization Detector

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

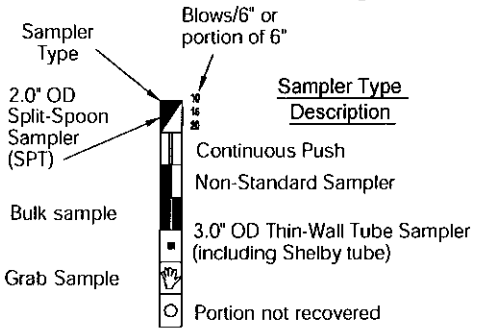
(3) Estimated Percentage

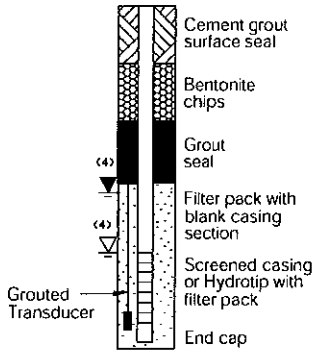
Percentage by Weight	Modifier
<5	Trace
5 to 15	Slightly (sandy, silty, clayey, gravelly)
15 to 30	Sandy, silty, clayey, gravelly)
30 to 49	Very (sandy, silty, clayey, gravelly)

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of groundwater — ATD = At time of drilling; Static water level (date); BGS = below ground surface
(5) Combined USCS symbols used for fines between 5% and 15% as estimated in General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

Aspect CONSULTING

Exploration Log Key

DATE
DESIGNED BY
DRAWN BY
REVISED BY

PROJECT NO.

FIGURE NO.
A-1

Q:_ACAD Standards\Standard Details\Exploration Log Key A1.dwg

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location: 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		Coordinates (Lat,Lon WGS84): ,	Exploration Number: **HA-1**
Contractor: N/A	Equipment: Hand	Sampling Method: Grab	Ground Surface (GS) Elev. (NAVD88): 101' (est.)	
Operator: Aspect	Exploration Method(s): Hand Auger	Work Start/Completion Dates: 5/18/2016	Top of Casing Elev. (NAVD88): NA	Depth to Water (Below GS): No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
						T-probe= 24"		**ICE-CONTACT DEPOSITS** Loose, slightly moist, orange-brown, gravelly, silty SAND (SM); predominatly fine to medium sand, fine subrounded gravel, scattered organics (roots and charcoal).	
1	100	Exploration backfilled with excavated soil.							1
								Loose, very moist to wet, brownish gray, very silty SAND (SM)to very sandy SILT (ML) ; fine to medium sand, scattered roots and charcoal fragments.	
2	99								2
								VASHON TILL Medium dense, very moist, light brown, slightly gravelly, very silty SAND (SM); predominantly fine to medium sand, fine subrounded gravel, scattered organic fragments.	
			S1			T-probe= <0.5"		Becomes very dense at 2.75' bgs.	
3	98							Bottom of exploration at 3 ft. bgs.	3
4	97								4

Legend

Sample Method: Grab Sample

Plastic Limit ├──┤ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log HA-1

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location		Coordinates (Lat,Lon WGS84)	Exploration Number
	10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		,	HA-2
Contractor	Equipment	Sampling Method	Ground Surface (GS) Elev. (NAVD88)	
N/A	Hand	Grab	98' (est.)	
Operator	Exploration Method(s)	Work Start/Completion Dates	Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)
Aspect	Hand Auger	5/18/2016	NA	1' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
						T-probe= 12"		**ICE-CONTACT DEPOSITS** Loose, very moist, dark brown and orange-brown, slightly gravelly, silty SAND (SM); predominantly fine to medium sand, fine gravel. Becomes wet and grayish brown at 0.8' bgs.	
1	97	Exploration backfilled with excavated soil. ∇ 5/18/2016						**VASHON TILL** Dense, wet, grayish brown, very silty SAND (SM); predominantly fine to medium sand, fine gravel.	1
			S1			T-probe= 0.5"		Becomes very dense and gravelly at 1.8' bgs.	
2	96							Bottom of exploration at 2 ft. bgs.	2
3	95								3
4	94								4

Legend

Sample Method: Grab Sample

Plastic Limit ├──┤ Liquid Limit

Water Level: ∇ Water Level (ATD)

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log HA-2

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location		Coordinates (Lat,Lon WGS84)	Exploration Number
	10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		,	HA-3
Contractor	Equipment	Sampling Method	Ground Surface (GS) Elev. (NAVD88)	
N/A	Hand	Grab	111' (est.)	
Operator	Exploration Method(s)	Work Start/Completion Dates	Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)
Aspect	Hand Auger	5/18/2016	NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
						T-probe= 12"		**ICE-CONTACT DEPOSITS** Loose, dry, brown, gravelly, silty SAND (SM); predominantly fine to medium sand, fine gravel.	
								Loose to medium dense, slightly moist, light brown, slightly gravelly, silty SAND (SM); predominantly fine to medium sand, fine gravel.	
1	110	Exploration backfilled with excavated soil.							1
								VASHON TILL Dense to very dense, slightly moist, light brown, gravelly, silty SAND (SM); predominantly fine to medium sand, fine gravel.	
2	109								2
			S1						
3	108					T-probe= 0.5"		Bottom of exploration at 3 ft. bgs.	3
4	107								4

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log HA-3

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		Coordinates (Lat,Lon WGS84) ,	Exploration Number **HA-4**
Contractor N/A	Equipment Hand	Sampling Method Grab	Ground Surface (GS) Elev. (NAVD88) 113' (est.)	
Operator Aspect	Exploration Method(s) Hand Auger	Work Start/Completion Dates 5/18/2016	Top of Casing Elev. (NAVD88) NA	Depth to Water (Below GS) No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
						T-probe= 8"-12"		**ICE-CONTACT DEPOSITS** Loose, dry, brown, gravelly, silty SAND (SM); fine to coarse sand, fine and coarse gravel.	
								Medium dense, dry, light brown, gravelly, silty SAND (SM); fine and coarse sand, fine and coarse subrounded to subangular gravel.	
1	112	Exploration backfilled with excavated soil.						**VASHON TILL** Dense, dry, light brown, very gravelly, silty SAND (SM); fine and coarse sand, fine and coarse subrounded to subangular gravel.	1
			S1			T-probe= <0.5"		Becomes very dense at 1.5' bgs.	
2	111							Bottom of exploration at 2 ft. bgs.	2
3	110								3
4	109								4

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log HA-4

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130			Geotechnical Exploration Log	
	Project Address & Site Specific Location			Coordinates (Lat,Lon WGS84)	Exploration Number
	10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.			,	TP-1
Contractor	Equipment	Sampling Method		Ground Surface (GS) Elev. (NAVD88)	
PHC Construction	Mini-trackhoe	Grab		156' (est.)	
Operator	Exploration Method(s)	Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)
	Kubota KX 057-4	5/18/2016		NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
						T-probe= 4"		**ICE-CONTACT DEPOSITS** Loose, slightly moist, light brown, very gravelly, silty SAND (SM); predominantly fine to coarse sand, fine and coarse subrounded to angular gravel, scattered roots and charcoal fragments.	
1	155	Exploration backfilled with excavated soil.							1
			S1	●		MC GS FC=10.1% DCPT= 26, >30			
2	154							**VASHON TILL** Very dense, moist, gray, gravelly, very silty SAND (SM); predominantly fine to medium sand, fine subrounded to subangular gravel, diamict texture.	2
3	153								3
4	152								4
5	151								5
6	150								6
7	149								7
8	148								8
			S2						
9	147							Bottom of exploration at 9 ft. bgs. Note: Vertical sidewall, no seepage observed.	9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-1

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location: 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		Coordinates (Lat,Lon WGS84): ,	Exploration Number: **TP-2**
Contractor: PHC Construction	Equipment: Mini-trackhoe	Sampling Method: Grab	Ground Surface (GS) Elev. (NAVD88): 157' (est.)	
Operator:	Exploration Method(s): Kubota KX 057-4	Work Start/Completion Dates: 5/18/2016	Top of Casing Elev. (NAVD88): NA	Depth to Water (Below GS): No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slight moist, brown, gravelly, silty SAND (SM); predominantly fine to medium sand, scattered roots and charcoal.	
1	156	Exploration backfilled with excavated soil.							1
2	155		S1			DCPT= 26, >30		**VASHON TILL** Dense, slightly moist, light brown, gravelly, silty SAND (SM); trace cobbles and boulders, predominantly fine to medium sand, fine and coarse subrounded to subangular gravel, diamict texture.	2
3	154								3
4	153		S2			DCPT= >30		Very dense, moist, gray, gravelly, silty SAND (SM); trace cobbles and boulders, predominantly fine to medium sand, fine and coarse subrounded to subangular gravel, diamict texture.	4
5	152								5
6	151		S3						6
								Bottom of exploration at 6.5 ft. bgs. Note: Vertical sidewall, no seepage observed.	
7	150								7
8	149								8
9	148								9

Legend

Sample Method: Grab Sample

Plastic Limit ├──┤ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-2

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130			Geotechnical Exploration Log	
	Project Address & Site Specific Location			Coordinates (Lat,Lon WGS84)	Exploration Number
	10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.			,	TP-3
Contractor	Equipment	Sampling Method		Ground Surface (GS) Elev. (NAVD88)	
PHC Construction	Mini-trackhoe	Grab		156' (est.)	
Operator	Exploration Method(s)	Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)
	Kubota KX 057-4	5/18/2016		NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, light brown, gravelly, very silty SAND (SM); fine to coarse sand, predominantly fine to coarse rounded to subangular gravel, scattered organic fragments and roots.	
1	155	Exploration backfilled with excavated soil.						Becomes medium dense, trace roots at 1' bgs.	1
			S1	●		MC GS FC=21.6%			
2	154					DCPT= >30		**VASHON TILL** Very dense, moist, gray, gravelly, very silty SAND (SM); fine to coarse sand, fine and coarse subangular to rounded gravel.	2
3	153								3
4	152					DCPT= >30			4
5	151								5
			S2						
6	150							Bottom of exploration at 6 ft. bgs. Note: Vertical sidewall, no seepage observed.	6
7	149								7
8	148								8
9	147								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-3

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location: 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		Coordinates (Lat,Lon WGS84): ,	Exploration Number: **TP-4**
Contractor: PHC Construction	Equipment: Mini-trackhoe	Sampling Method: Grab	Ground Surface (GS) Elev. (NAVD88): 159' (est.)	
Operator:	Exploration Method(s): Kubota KX 057-4	Work Start/Completion Dates: 5/18/2016	Top of Casing Elev. (NAVD88): NA	Depth to Water (Below GS): No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
						T-probe= 24"-32"		**ICE-CONTACT DEPOSITS** Loose, slightly moist, light brown and dark brown mottled, slightly gravelly, silty SAND (SM); predominantly fine to medium sand, predominantly fine subangular to subrounded gravel, scattered roots and organic fragments.	
1	158	Exploration backfilled with excavated soil.							1
2	157		S1			DCPT= >30			2
								VASHON TILL Very dense, moist, gray, slightly gravelly, silty SAND (SM); fine to coarse sand, fine and coarse subrounded to subangular gravel, diamict texture.	
3	156								3
4	155								4
5	154								5
6	153							Bottom of exploration at 6 ft. bgs. Note: Vertical sidewall, no seepage observed.	6
7	152								7
8	151								8
9	150								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢—⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-4

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130			Geotechnical Exploration Log	
	Project Address & Site Specific Location			Coordinates (Lat,Lon WGS84)	Exploration Number
	10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.			,	TP-5
Contractor	Equipment	Sampling Method		Ground Surface (GS) Elev. (NAVD88)	
PHC Construction	Mini-trackhoe	Grab		160' (est.)	
Operator	Exploration Method(s)	Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)
	Kubota KX 057-4	5/18/2016		NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, brown, gravelly, silty SAND (SM); predominantly fine to medium sand, fine and coarse gravel, scattered roots and charcoal.	
1	159	Exploration backfilled with excavated soil.							1
2	158		S1	●		MC GS FC=13.2%		Medium dense, moist, light brown, gravelly, silty SAND (SM); fine to coarse sand, fine and coarse gravel disturbed and blocky appearance.	2
3	157					DCPT= >30		**VASHON TILL** Very dense, moist, gray, gravelly, silty SAND (SM); fine to coarse sand, fine and coarse gravel, diamict texture.	3
4	156								4
5	155								5
6	154								6
7	153							Bottom of exploration at 7 ft. bgs. Note: Vertical sidewall, no seepage observed.	7
8	152								8
9	151								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-5

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location: 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		Coordinates (Lat,Lon WGS84): ,	Exploration Number: **TP-6**
Contractor: PHC Construction	Equipment: Mini-trackhoe	Sampling Method: Grab	Ground Surface (GS) Elev. (NAVD88): 158' (est.)	
Operator:	Exploration Method(s): Kubota KX 057-4	Work Start/Completion Dates: 5/18/2016	Top of Casing Elev. (NAVD88): NA	Depth to Water (Below GS): No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, orange-brown, gravelly, silty SAND (SM); trace cobbles and boulders, fine to coarse sand, fine and coarse subrounded to subangular gravel, scattered roots and organic fragments.	
1	157	Exploration backfilled with excavated soil.							1
			S1	●		MC FC FC=13.1% DCPT= >30			
2	156							**VASHON TILL** Very dense, slightly moist, light brown, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse subrounded to subangular gravel.	2
3	155							Becomes gray and moist, diamict texture at 3' bgs.	3
4	154								4
5	153							Bottom of exploration at 5 ft. bgs. Note: Vertical sidewall, no seepage observed.	5
6	152								6
7	151								7
8	150								8
9	149								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-6

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130			Geotechnical Exploration Log	
	Project Address & Site Specific Location 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.			Coordinates (Lat,Lon WGS84) ,	Exploration Number **TP-7**
Contractor PHC Construction	Equipment Mini-trackhoe	Sampling Method Grab		Ground Surface (GS) Elev. (NAVD88) 158' (est.)	
Operator	Exploration Method(s) Kubota KX 057-4	Work Start/Completion Dates 5/18/2016		Top of Casing Elev. (NAVD88) NA	Depth to Water (Below GS) No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, light brown, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse subrounded to subangular gravel, scattered organic fragments and roots.	
1	157	Exploration backfilled with excavated soil.							1
2	156		S1	●		DCPT= 20 MC FC FC=8.3%		Medium dense, moist, light brown, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse gravel, detrital till fragments.	2
3	155								3
4	154		S2	●		DCPT= 24 MC			4
5	153								5
								VASHON TILL Dense, moist, gray, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse gravel.	
6	152								6
7	151								7
			S3						
8	150							Bottom of exploration at 8 ft. bgs. Note: Vertical sidewall, no seepage observed.	8
9	149								9

Legend

Sample Method: Grab Sample

Plastic Limit ├──┤ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-7

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location: 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		Coordinates (Lat,Lon WGS84): ,	Exploration Number: **TP-8**
Contractor: PHC Construction	Equipment: Mini-trackhoe	Sampling Method: Grab	Ground Surface (GS) Elev. (NAVD88): 160' (est.)	
Operator:	Exploration Method(s): Kubota KX 057-4	Work Start/Completion Dates: 5/18/2016	Top of Casing Elev. (NAVD88): NA	Depth to Water (Below GS): No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, light brown, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse gravel.	
1	159	Exploration backfilled with excavated soil.							1
2	158		S1			DCPT= >30		**VASHON TILL** Very dense, moist, gray, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse subrounded to subangular gravel, diamict texture.	2
3	157								3
4	156		S2						4
5	155							Bottom of exploration at 5 ft. bgs. Note: Vertical sidewall, no seepage observed.	5
6	154								6
7	153								7
8	152								8
9	151								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢—⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-8

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130			Geotechnical Exploration Log	
	Project Address & Site Specific Location			Coordinates (Lat,Lon WGS84)	Exploration Number
	10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.			,	TP-9
Contractor	Equipment	Sampling Method		Ground Surface (GS) Elev. (NAVD88)	
PHC Construction	Mini-trackhoe	Grab		152' (est.)	
Operator	Exploration Method(s)	Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)
	Kubota KX 057-4	5/18/2016		NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, dark brown, gravelly, silty SAND (SM); fine and coarse sand, fine and coarse gravel, numerous roots and organics.	
1	151	Exploration backfilled with excavated soil.							1
2	150								2
			S1			DCPT= 23,23,>30		**VASHON TILL** Dense to very dense, moist, brown, gravelly, silty SAND (SM); fine to coarse sand, fine and coarse gravel.	
3	149								3
4	148							Becomes gray with diamict texture at 4.5' bgs.	4
5	147		S2						5
6	146							Bottom of exploration at 5 ft. bgs. Note: Vertical sidewall, no seepage observed.	6
7	145								7
8	144								8
9	143								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-9

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location: 10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		Coordinates (Lat,Lon WGS84): ,	Exploration Number: **TP-10**
Contractor: PHC Construction	Equipment: Mini-trackhoe	Sampling Method: Grab	Ground Surface (GS) Elev. (NAVD88): 158' (est.)	
Operator:	Exploration Method(s): Kubota KX 057-4	Work Start/Completion Dates: 5/18/2016	Top of Casing Elev. (NAVD88): NA	Depth to Water (Below GS): No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, light brown, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine to coarse subrounded to subangular gravel.	
1	157	Exploration backfilled with excavated soil.							1
2	156		S1					Becomes medium dense at 2' bgs.	2
3	155								3
4	154		S2					**VASHON TILL** Very dense, slightly moist, gray, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse gravel, diamict texture.	4
								Bottom of exploration at 4.5 ft. bgs.	
5	153							Note: Vertical sidewall, no seepage observed.	5
6	152								6
7	151								7
8	150								8
9	149								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-10

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

Aspect CONSULTING	Montessori Country School - 160130		Geotechnical Exploration Log	
	Project Address & Site Specific Location		Coordinates (Lat,Lon WGS84)	Exploration Number
	10994 Arrow Point Dr NE, Bainbridge Island, WA, Washington.		,	TP-11
Contractor	Equipment	Sampling Method	Ground Surface (GS) Elev. (NAVD88)	
PHC Construction	Mini-trackhoe	Grab	160' (est.)	
Operator	Exploration Method(s)	Work Start/Completion Dates	Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)
	Kubota KX 057-4	5/18/2016	NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Blows/foot ▲ Water Content (%)● 0 10 20 30 40 50	Blows/6"	Tests	Material Type	Description	Depth (ft)
								ICE-CONTACT DEPOSITS Loose, slightly moist, light brown and dark brown mottled, slightly gravelly, very silty SAND (SM); fine to coarse sand, fine and coarse gravel, scattered organics.	
1	159	Exploration backfilled with excavated soil.							1
2	158		S1	●		DCPT= 20 MC FC FC=16.6%		Medium dense to dense, moist, light brown, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse subrounded to subangular gravel.	2
3	157								3
								VASHON TILL Dense to very dense, moist, gray, gravelly, silty SAND (SM); trace cobbles, fine to coarse sand, fine and coarse subrounded to subangular gravel.	
4	156		S2						4
5	155							Bottom of exploration at 5 ft. bgs. Note: Vertical sidewall, no seepage observed.	5
6	154								6
7	153								7
8	152								8
9	151								9

Legend

Sample Method: Grab Sample

Plastic Limit ⊢——⊣ Liquid Limit

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: JGF
Approved by: AJH

Exploration log TP-11
Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\MONTESSORI COUNTRY SCHOOL-160130.GPJ June 22, 2016

APPENDIX B

Lab Testing Results

B. Geotechnical Laboratory Testing

Laboratory tests were conducted on selected soil samples to characterize certain engineering (physical) properties of the soils at the Site. Laboratory testing included determination of grain-size distribution and moisture content determinations. The laboratory tests were conducted in general accordance with appropriate ASTM test methods. Test procedures are discussed below.

The grain-size distribution of selected samples was analyzed in general accordance with ASTM D422, *Standard Test Method for Particle-Size Analysis of Soils* without hydrometer determination of fines content. The moisture content of selected samples was analyzed in general accordance with ASTM D2216, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.*

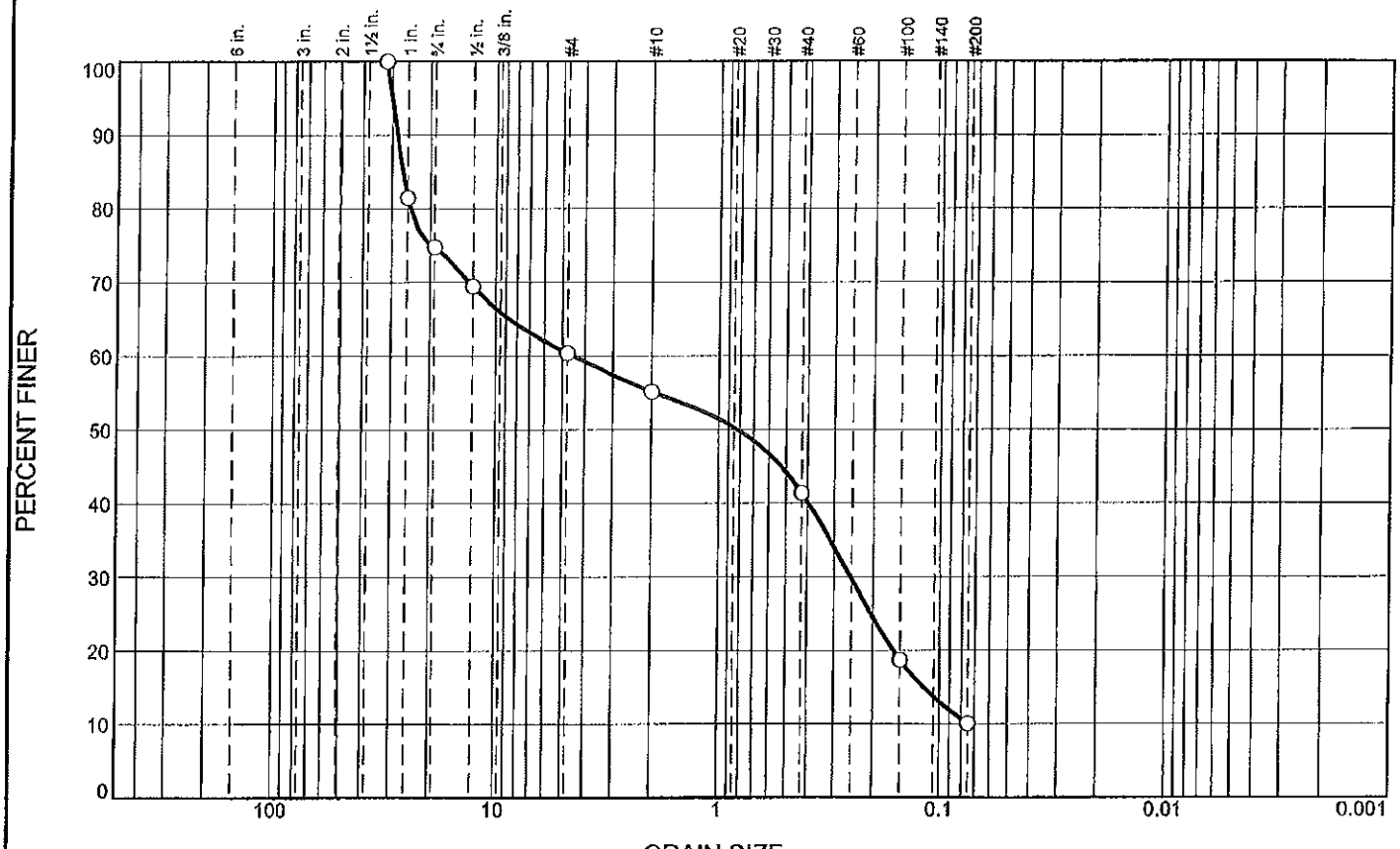
Hayre McElroy & Associates, LLC

Moisture Contents

Moisture Content Test Results (ASTM D2216) - Montessori Country School P# 08-175/160130

HMA Sample #	Sample #	Location	Date Received	Date of Test	Tare #	Wt of Tare	Tare+ Wet	Tare+ Dry	Moisture %
7834-1	TP-01 S-1	1.5'	5/26/2016	5/27/2016	A-12	16.0	886.2	839.0	5.7
7834-2	TP-03 S-1	1.5'	5/26/2016	5/27/2016	B-25	16.0	699.2	627.9	11.7
7834-3	TP-05 S-1	2'	5/26/2016	5/27/2016	A-3	16.1	604.0	562.5	7.6
7834-4	TP-06 S-1	1.5'	5/26/2016	5/27/2016	A-7	16.1	502.8	466.9	8.0
7834-5	TP-07 S-1	2'	5/26/2016	5/27/2016	A-23	16.1	502.8	466.9	8.0
7834-6	TP-07 S-2	4'	5/26/2016	5/27/2016	A-25	16.0	686.9	632.7	8.8
7834-7	TP-11 S-1	2'	5/26/2016	5/27/2016	A-32	16.0	699.2	633.8	10.6

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	25.2	14.4	5.3	13.7	31.3	10.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/4"	100.0		
1"	81.5		
3/4"	74.8		
1/2"	69.4		
#4	60.4		
#10	55.1		
#40	41.4		
#100	18.7		
#200	10.1		

* (no specification provided)

Soil Description

Sand with Silt and Grevel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 28.5231 D_{85}= 26.8098 D_{60}= 4.4983
D_{50}= 0.8246 D_{30}= 0.2535 D_{15}= 0.1177
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

Location: TP-01 S-1
Sample Number: 7834-1 **Depth:** 1.5'

Date: 05/31/2016

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting
Project: Montessori Country School
Project No: 08-175/160130 **Figure**

Tested By: BH **Checked By:** JAM

GRAIN SIZE DISTRIBUTION TEST DATA

5/31/2016

Client: Aspect Consulting
Project: Montessori Country School
Project Number: 08-175/160130
Location: TP-01 S-1
Depth: 1.5'
Sample Number: 7834-1
Material Description: Sand with Silt and Grevel
Date: 05/31/2016
USCS Classification: SP-SM
Tested by: BH
Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 778.20
Tare Wt. = 16.00
Minus #200 from wash = 7.4%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
839.00	16.00	1 1/4"	0.00	0.00	100.0
		1"	152.40	0.00	81.5
		3/4"	55.10	0.00	74.8
		1/2"	44.10	0.00	69.4
		#4	74.60	0.00	60.4
		#10	43.10	0.00	55.1
		#40	113.00	0.00	41.4
		#100	186.90	0.00	18.7
		#200	70.90	0.00	10.1

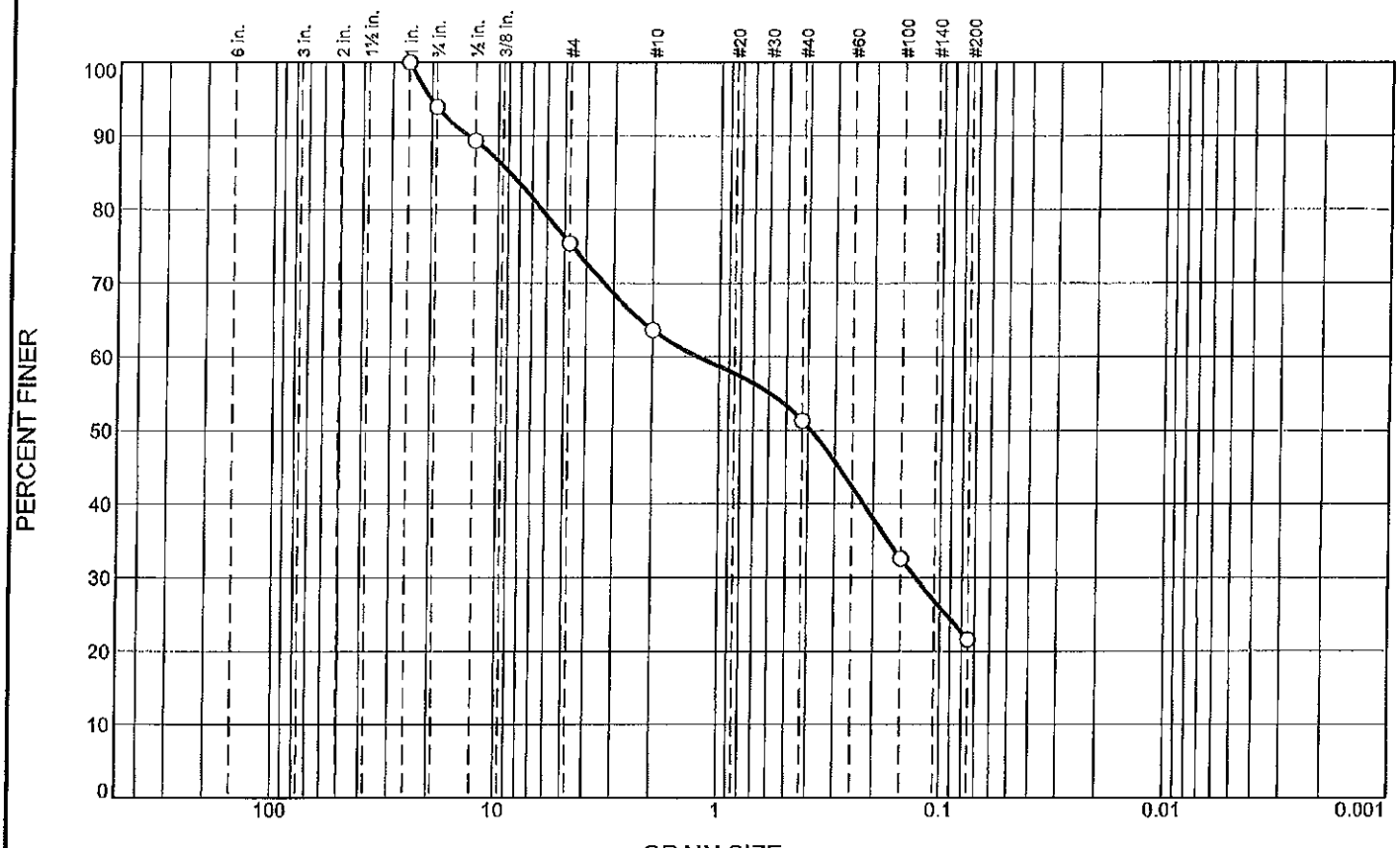
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	25.2	14.4	39.6	5.3	13.7	31.3	50.3			10.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1177	0.1611	0.2535	0.8246	4.4983	24.6741	26.8098	28.5231	30.1331

Fineness Modulus
3.91

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.1	18.5	11.7	12.4	29.7	21.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	93.9		
1/2"	89.3		
#4	75.4		
#10	63.7		
#40	51.3		
#100	32.6		
#200	21.6		

* (no specification provided)

Soil Description

Silty Sand with Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 13.6153 D_{85}= 8.8719 D_{60}= 1.2423
D_{50}= 0.3874 D_{30}= 0.1292 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: TP-03 S-1
Sample Number: 7834-2 **Depth:** 1.5' **Date:** 05/31/2016

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting
Project: Montessori Country School
Project No: 08-175/160130 **Figure**

Tested By: BH **Checked By:** JAM

GRAIN SIZE DISTRIBUTION TEST DATA

5/31/2016

Client: Aspect Consulting
Project: Montessori Country School
Project Number: 08-175/160130
Location: TP-03 S-1
Depth: 1.5'
Sample Number: 7834-2
Material Description: Silty Sand with Gravel
Date: 05/31/2016
USCS Classification: SM
Tested by: BH
Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 525.90
Tare Wt. = 16.00
Minus #200 from wash = 16.7%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
627.90	16.00	1"	0.00	0.00	100.0
		3/4"	37.20	0.00	93.9
		1/2"	28.10	0.00	89.3
		#4	85.00	0.00	75.4
		#10	72.10	0.00	63.7
		#40	75.40	0.00	51.3
		#100	114.70	0.00	32.6
		#200	67.30	0.00	21.6

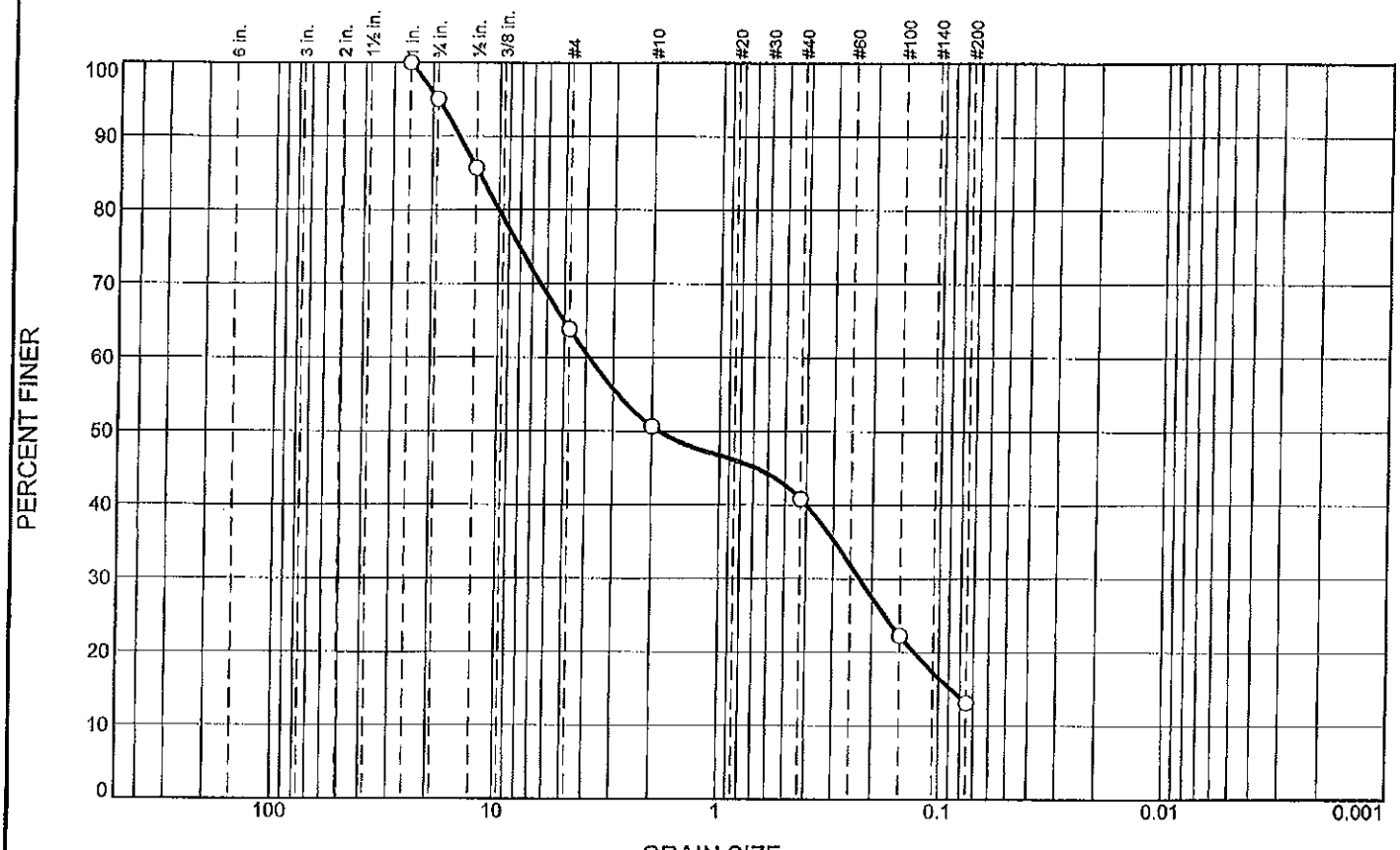
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	6.1	18.5	24.6	11.7	12.4	29.7	53.8			21.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1292	0.3874	1.2423	6.3372	8.8719	13.6153	20.2285

Fineness Modulus
2.86

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.0	31.2	13.2	9.8	27.6	13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	95.0		
1/2"	85.7		
#4	63.8		
#10	50.6		
#40	40.8		
#100	22.3		
#200	13.2		

* (no specification provided)

Soil Description

Silty Sand with Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 15.1590 D_{85}= 12.3364 D_{60}= 3.8809
D_{50}= 1.8605 D_{30}= 0.2279 D_{15}= 0.0879
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: TP-05 S-1
Sample Number: 7834-3 **Depth:** 2' **Date:** 05/31/2016

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting
Project: Montessori Country School
Project No: 08-175/160130 **Figure**

Tested By: BH **Checked By:** JAM

GRAIN SIZE DISTRIBUTION TEST DATA

5/31/2016

Client: Aspect Consulting
Project: Montessori Country School
Project Number: 08-175/160130
Location: TP-05 S-1
Depth: 2'
Sample Number: 7834-3
Material Description: Silty Sand with Gravel
Date: 05/31/2016
USCS Classification: SM
Tested by: BH
Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 511.50
Tare Wt. = 16.10
Minus #200 from wash = 9.3%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
562.50	16.10	1"	0.00	0.00	100.0
		3/4"	27.10	0.00	95.0
		1/2"	51.00	0.00	85.7
		#4	119.70	0.00	63.8
		#10	71.90	0.00	50.6
		#40	53.60	0.00	40.8
		#100	101.50	0.00	22.3
		#200	49.60	0.00	13.2

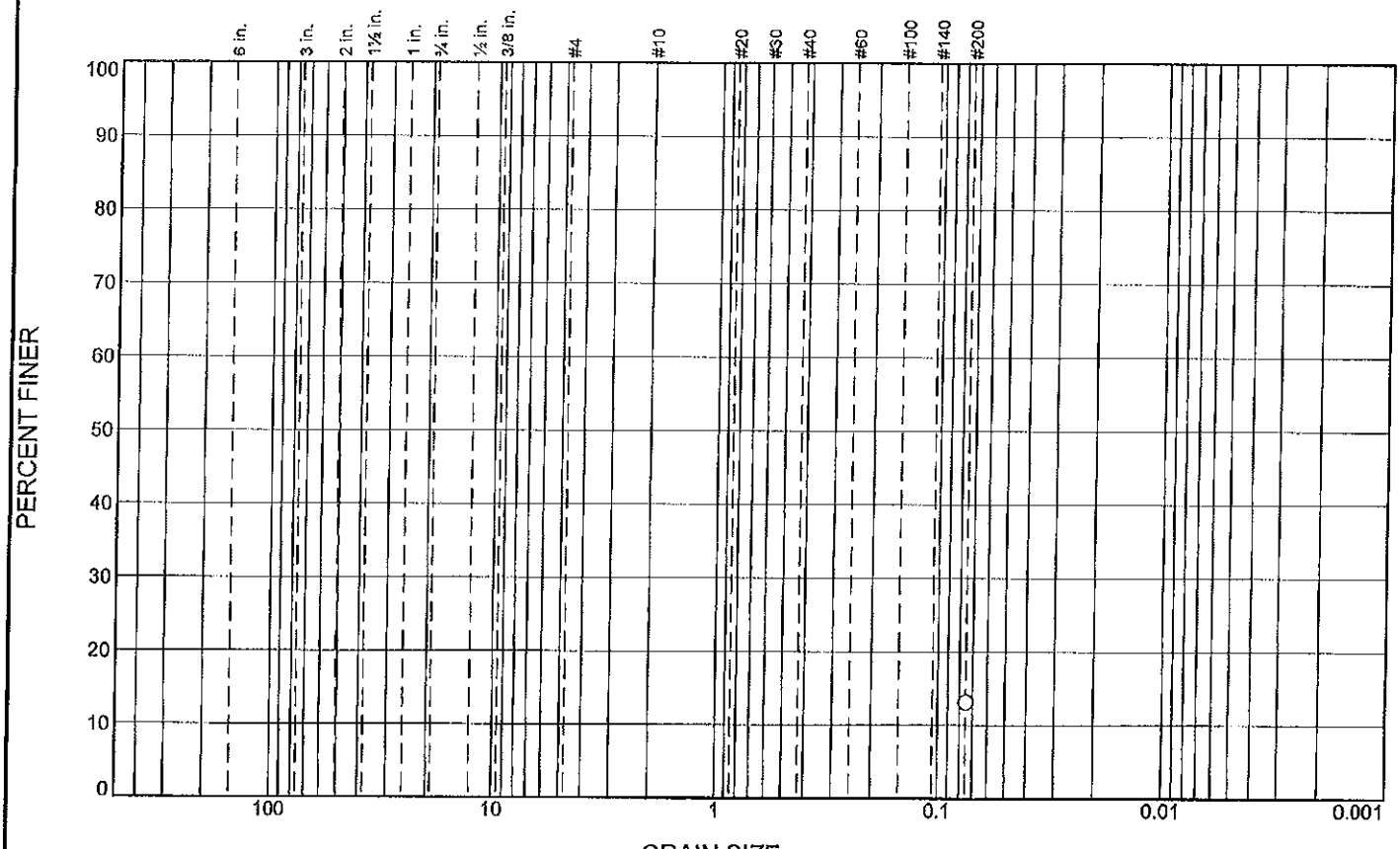
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	5.0	31.2	36.2	13.2	9.8	27.6	50.6			13.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0879	0.1297	0.2279	1.8605	3.8809	10.0099	12.3364	15.1590	19.0112

Fineness Modulus
3.61

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						13.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	13.1		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Location: TP-06 S-1
Sample Number: 7834-4 **Depth:** 1.5' **Date:** 05/31/2016

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting
Project: Montessori Country School
Project No: 08-175/160130 **Figure**

Tested By: BH **Checked By:** JAM

GRAIN SIZE DISTRIBUTION TEST DATA

5/31/2016

Client: Aspect Consulting
Project: Montessori Country School
Project Number: 08-175/160130
Location: TP-06 S-1
Depth: 1.5'
Sample Number: 7834-4
Date: 05/31/2016
Tested by: BH
Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 539.50
Tare Wt. = 16.10
Minus #200 from wash = 13.1%

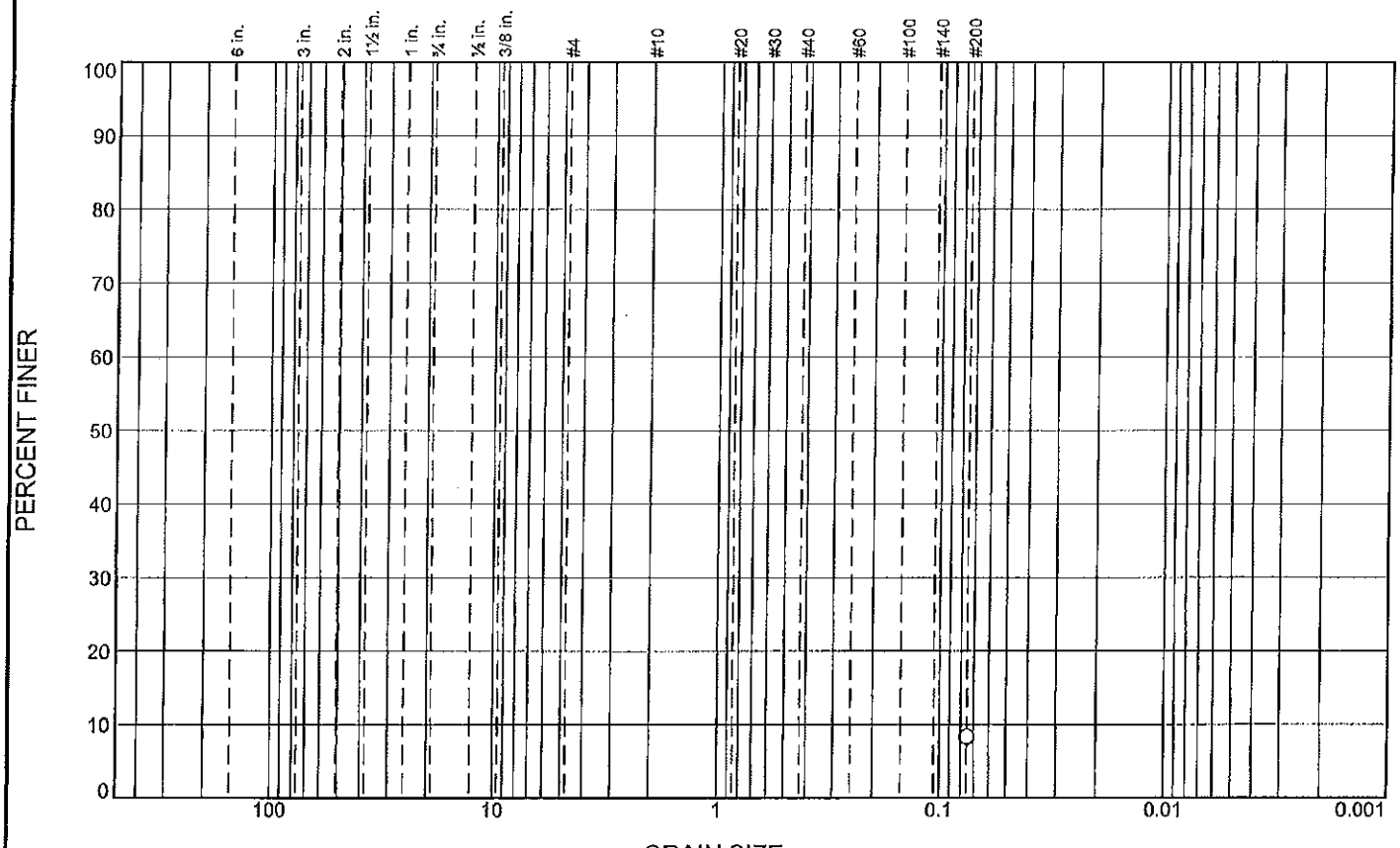
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
618.70	16.10	#200			13.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										13.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						8.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	8.3		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Location: TP-07 S-1
Sample Number: 7834-5 **Depth:** 2'

Date: 05/31/2016

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting
Project: Montessori Country School

Project No: 08-175/160130 **Figure**

Tested By: BH **Checked By:** JAM

GRAIN SIZE DISTRIBUTION TEST DATA

5/31/2016

Client: Aspect Consulting
Project: Montessori Country School
Project Number: 08-175/160130
Location: TP-07 S-1
Depth: 2'
Sample Number: 7834-5
Date: 05/31/2016
Tested by: BH
Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 429.30
Tare Wt. = 16.10
Minus #200 from wash = 8.3%

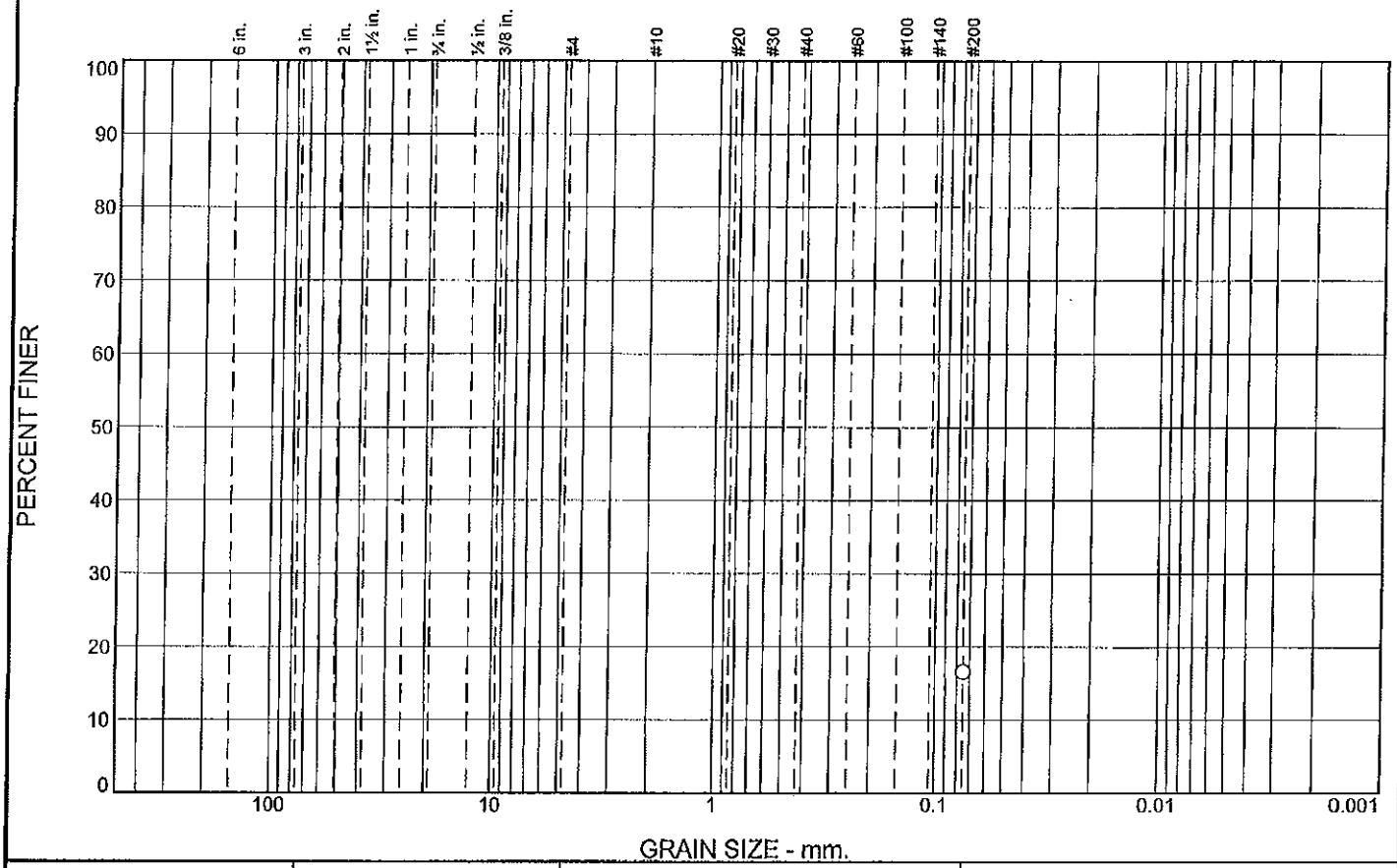
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
466.90	16.10	#200			8.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										8.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						16.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	16.6		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Location: TP-11 S-1
Sample Number: 7834-7 **Depth:** 2' **Date:** 05/31/2016

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting
Project: Montessori Country School
Project No: 08-175/160130 **Figure**

Tested By: BH **Checked By:** JAM

GRAIN SIZE DISTRIBUTION TEST DATA

5/31/2016

Client: Aspect Consulting
Project: Montessori Country School
Project Number: 08-175/160130
Location: TP-11 S-1
Depth: 2'
Sample Number: 7834-7
Date: 05/31/2016
Tested by: BH
Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 531.30
Tare Wt. = 16.00
Minus #200 from wash = 16.6%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
633.80	16.00	#200			16.6

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										16.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}

City of Bainbridge Island

JUN 15 2016

Planning and
Community Development

Traffic Plan for Montessori Country School

Arrival and Dismissal

The improvement of the on-site parking and drop-off and pick-up process at Montessori Country School was a primary concern during the design phase. In order to improve upon the current plan, the following changes were incorporated into the design:

1. On-site parking will be separate from the main driveway, reducing the traffic flow stoppage created when a car needed to pull out of a parking space into the carpool line. Parking spaces along the north end of the driveway will be used by staff and will not be accessed during peak carpool times.
2. There are two areas for drop-off and pick-up, one for the preschool near the entry and one for the elementary program at the north end of the driveway.
3. The driveway is widened at the two load/unload areas, allowing cars to pull out from the area as soon as possible. This will allow the line of cars to continue moving when one car is taking longer to load or unload.
4. For the preschool drop-off and pick-up, there will be four staff members available to help load and unload cars four at a time. Children are loaded and unloaded from the passenger side only.
5. Drop-off and pick-up times are staggered. Elementary students will arrive between 8:00 and 8:15, and will pull through to the north end of the driveway where they will unload three cars at a time. Primary children will arrive between 8:20 and 8:45 where they will unload four cars at a time at the first load/unload area. Preprimary children will arrive from 8:45-9:00 and will park and walk in.

Parents are informed of the importance of following carpool guidelines during back to school meetings, in the Parent Handbook (see current version attached), and during the first two weeks of school when all staff and parent volunteers are available during peak times. Staff and Administration strictly enforce the school policy that Arrow Point Drive must remain free of waiting cars at all times. If there is no room in the driveway, parents are instructed to park in the parking lot of Battle Point Park and wait for the traffic to subside, or walk their child to school along the path provided.

Event Parking

The school has 8-10 events throughout the year that necessitate overflow parking at Battle Point Park. Two of the events are all-school events and the others involve either the Primary families or the Elementary families. Montessori Country School has a long-standing relationship with the park district for overflow parking and expressly discourages any parking on Arrow Point Drive.

We have a written agreement with BIPRD that our parents may park at the park for overflow event parking or when the driveway is full. Many of our parents park at the park, use the trail to pick up their child from school, and utilize the playground after school.

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February 18, 2016

City of Bainbridge Island

JUN 15 2016

Planning and
Community Development

Meghan Skotheim
Montessori Country School
10994 Arrow Point Drive
Bainbridge, Island 98110

c/o: Brandon Hogg, Studio Hamlet Architects

Subject: Montessori Country School Expansion
Bainbridge Island, Washington

Dear Ms. Skotheim,

This traffic analysis and recommendations report is intended to address traffic and circulation impacts related to expansion of the Montessori Country School campus located at 10994 Arrow Point Road. A vicinity map highlighting the campus is attached as **Figure 1**.

Montessori Country School operates out of two campus located at 10944 Arrow Point Road (preschool and kindergarten students) and at 8225 High School Road (elementary students). The school plans to consolidate students and expand the Arrow Point Road campus. **Table 1** compares the existing to proposed campus student populations by class type (preschool, kindergarten, and elementary).

Table 1: Existing and Proposed Campus Plans

Existing	Students	Class Schedule	Proposed	Students	Class Schedule
Preschool	24	8:30 AM-11:30 AM	Preschool	48	8:30 AM-11:30 AM
Preschool	11	8:45 AM-11:00 AM	Preschool	15	8:45 AM-11:15 AM
Preschool	23	12:30 PM-3:30 PM	Kindergarten	21	8:30 AM-3:30 PM
Kindergarten	24	8:30 AM-11:30 AM	Elementary	37	8:00 AM-3:00 PM
Elementary	31	8:00 AM-3:00 PM	Elementary (future)	21	8:00 AM-3:00 PM

The future campus is planned with 18 total staff members. Similar to the school's current policy, the campus will be closed at 4:00 PM and no students or staff are anticipated on campus after 4:00 PM. In total the future campus is proposed with 25 on-campus parking stalls. A conceptual campus plan is provided at **Figure 2**.

Vehicle accesses are proposed at the south (inbound only) and north (outbound only) ends of the campus. The school's north-outbound access is located approximately 80 feet north of the inbound only access to Battle Point Park and 180 feet north from the school's south-inbound access. The school's south-inbound access is located approximately 60 feet south of the outbound inbound only access to Battle Point Park.

The report includes an assessment of vehicle trip generation, review of site access spacing and campus circulation, transportation impact fees, and our recommendations.

Vehicle Trip Generation

Table 2 breaks down the numbers of students per class and resulting number of student vehicle trips, based on the anticipated class schedules, presented previously. The following assumptions were made:

1. All students arrive within a 30 minute period prior to the start of classes.
2. All students depart within a 15 minute period after their class ends.
3. A portion of the student population will arrive together with families having multiple children at the school and also via carpooling. This study assumes a conservative ratio of 1.2 students per car based on information provided by school officials.
4. Trips were computed by multiplying the student arrivals (spread equally within the 15 minute period by the student per car ratio of 1.2.

Table 2: Future Student Schedule and Related Vehicle Trips

Start Time	Preschool (8:30A-11:30A)		Preschool (8:45A-11:15A)		Kindergarten (8:30A-3:30P)		Elementary (8:00A-3:00P)		Elementary (8:00A-3:00P)		Student-Related Vehicle Trips		
	Kids [1]	Trips	Kids [1]	Trips	Kids [1]	Trips	Kids [1]	Trips	Kids [1]	Trips	In	Out	Total
7:30A							37	46	21	26	48	23	72
8:00A	48	60	7	6	21	26		16		9	63	53	117
8:30A		20	8	19		9					7	42	49
9:00A													
9:30A													
10:00A													
10:30A													
11:00A		40	15	25							53	13	68
11:30A	48	40										40	40
12:00P													
12:30P													
1:00P													
1:30P													
2:00P													
2:30P						18		31		18	66		66
3:00P					21	18	37	31	21	18		66	66
Totals	**96**	**160**	**30**	**50**	**42**	**70**	**74**	**123**	**42**	**70**	**237**	**237**	**473**

1. Kids = Students

Not included in the above table are vehicle trips related to staff and teachers, who arrive prior to the students to get ready for the day's class and support student drop-off and pick-up. Additionally not accounted for are those few parents who may park and stay on campus through their student's classes to support and participate in school activities.

The future campus is projected to generate 473 total student-related trips. The peak hour traffic volumes occur between 7:45 AM and 8:45 AM at the school driveways, with 207 vehicle trips. Preschool classes (63 students) end by 11:30 and kindergarten classes (21 students) and elementary classes (58 students) end by 3:00 PM. All students are expected to depart the campus around 3:00 PM at the end of the last classes. Staff will also depart by 4:00 PM when the school closes.

Using a similar procedure to compute existing student-related trips, the existing campuses generates 377 student-related trips and has a peak traffic impact of 145 vehicle trips also between 7:45 AM and

8:45 AM. Compared to the existing school, the expanded campus will have 29 additional students and generate 97 more daily vehicle trips.

Site Accesses

Arrow Point Road is a two lane collector arterial with a posted speed limit of 35 mph fronting the campus and Battle Point Park.

Bainbridge Island Design Standards indicate the minimum access spacing requirement is 135 feet between adjacent access points and streets.

The south campus access is 60 feet south from the access to Battle Point Park and the north campus access is 80 feet north of the access to Battle Point Park. The site accesses do not satisfy the City's spacing requirements; the following outlines why the proposed site access locations are reasonable:

- The location of the south campus access is at the existing south driveway to the current Arrow Point Road campus. The future campus would increase the width between the inbound and one outbound campus accesses to provide more onsite area for vehicles to circulate.
- Per data collected on Arrow Point Road west of Miller Road on Tuesday and Wednesday, June 10 and 11, 2014 traffic volumes in the vicinity of the school campus and Battle Point Park are not significant. In the AM peak hour (7:30-8:30 AM) there are 60 vehicle trips eastbound, approaching Miller Road, and 48 vehicles trips westbound, departing Miller Road and approaching the Battle Point Park area.
- Per the Institute of Transportation Engineers (ITE) *Parking Generation, 4th Edition* (2010) a City Park use generates its highest levels of parking demand around 1 PM. Based on the year 2014 peak hour traffic volumes, activity at Battle Point Park is likely to be not significant, especially during school hours.
- When school traffic is expected to be at its peak, between 7:30 and 8:30 AM, corresponding to the start of classes, park activity is very minimal. Thus, minimizing potential conflicts between vehicles related to park activity and school trips.

Table 3 summarizes our field review of the sight distance at both campus driveway locations. Intersection sight distance does not apply at the inbound only driveway. The sightlines at the campus driveways satisfy AASHTO guidelines.

Table 3: Sight Distance

Location	Orientation	Sight Distance [1]	Requirement [2]	Field Measure	Okay?
North Driveway (outbound)	Looking North	Intersection	500 feet	500 feet	Yes
		Stopping	360 feet	500 feet	Yes
	Looking South	Intersection	500 feet	500 feet	Yes
		Stopping	360 feet	500 feet	Yes
South Driveway (inbound)	Looking North	Stopping	360 feet	500 feet	Yes
	Looking South	Stopping	360 feet	500 feet	Yes

1. Intersection sight distance, for vehicles entering the major roadway (Arrow Point Drive)
   Stopping sight distance, for approaching vehicles to see an object at the edge of the driveway
2. AASHTO Green Book, 6th Edition (2011), with a 45 mph design speed

Circulation

On site traffic flows from south to north. A total of 25 onsite parking spaces are proposed. The majority will be utilized by school staff. As indicated previously, up to 18 teachers and staff are projected at the future campus.

The proposed campus expansion provides increased circulation, with inbound only and outbound only accesses, more onsite parking, and drop-off and pick-up space totaling 120 feet, or between 6 and 8 cars. Drop-off and pick-up zones are separate for the elementary students (60 feet of drop-off and pick-up space) and preschool and kindergarten students (60 feet of drop-off and pick-up space). In general, most preschool aged children will have parents walking them into the school or to an adult supervisor waiting to walk them into the school.

Class start and end times are staggered to space out the time periods for student drop-offs and pick-ups. Typical school related traffic patterns show short surges in traffic at the start of classes and then lengthy periods with minimal traffic activity. Staggered class times space out the surges to allow onsite traffic to generally clear prior to the next surge of traffic associated with a following class.

As we understand, policy is for parents/guardians to circulate through Battle Point Park when traffic began to back up on Arrow Point Road, due to the limited turnaround area and drop-off and pick-up space on the existing campus. A similar policy is likely to be provided with the future campus. With limited park activity during periods when school traffic is at its highest, this is not likely to be a major issue.

Parking

The preschool and kindergarten student population is 84 students and the elementary school student population is up to 58 students.

Bainbridge Island Municipal Code Table 18.15.020-1: Off-Street Parking Spaces Required for Residential, Neighborhood Service Center, Business/Industrial, and Water-Dependent Industrial Zone Districts requires 1 parking stall per 50 elementary students plus 1 stall per elementary school employee.

The Code does not have a specific parking requirement for preschool or kindergarten uses. Thus, the preschool or kindergarten parking needs were reviewed using the parking requirements for a day care land use. The Code requires 1 parking stall per on-duty employee and 1 stall per every 12 adults or children served by the facility.

Table 4 includes the campus's parking requirements based on the Bainbridge Island Code's day care and elementary parking ratios.

Table 4: Code Parking Requirements

Land Use	Persons	Parking Ratio	Parking Required
Day Care	84 students 13 teachers/staff	1 stall per 12 children 1 stall per adult	7 stalls 13 stalls
Elementary	59 students 5 teachers/staff	1 stall per 50 students 1 stall per teacher	1 stalls 5 stalls
Total			26 stalls

The proposed parking supply falls just short of the offsite parking requirements by one stall.

Transportation Impact Fees

Site expansion is subject to the City of Bainbridge Island's traffic impact fee ordinance (Ordinance No. 2015-07). The City's fee schedule identifies the fee for "Private School K-8" is $5,338.18 per 1,000 sq. ft. of new school space. Transportation impact fees are assessed based on the forecasted number of new PM peak hour trips. And the PM peak hour is defined by the City as; "the highest volume of traffic for a continuous hour between 4:00 PM and 6:00 PM".

The campus is closed at 4:00 PM; and thus, no traffic is projected during the PM peak hour period. The school expansion does not meet the City's requirement for payment of traffic impact fees.

Recommended Program to Facilitate Transportation and Parking Management of the Campus

- Traffic Generation:
  - Encourage faculty and staff to carpool or use non-motorized or public transportation. Kitsap Transit Route #95 provides weekday AM service between 4:45 and 8:00 AM and weekday PM services between 3:45 PM and 7:00 PM on Arrow Point Road.
  - Encourage student-families to carpool.
  - Provide a centralized area (or webpage) to post carpool, walking and transit opportunities.
- Onsite Circulation:
  - Staff both curbside drop-off and pick-up areas to facilitate and support efficient student drop-off and pick-up.
  - Staff the onsite parking area to assist students and parents who need to park and walk their children into the school or to a staff supervisor. Staff should also be provided to support crossing maneuvers onsite.
- Pick-up and drop off:
  - Provide guidelines to parents, whereby students must be on the passenger side (curbside) of the vehicle during drop-off and pick-up and that school bags and other related items must be with the student during drop-off and pick-up to make drop-off and pick-up as efficient as possible.
  - Drivers will be required to remain in their vehicles during student drop-off and pick-up times.
  - Drivers may pull in front on an idling vehicle to drop-off or pick-up students.
  - Staff will attempt to maximize use of the drop off area.
- Parking:
  - Encourage carpooling, to reduce the need to park on campus.
  - Carpool, non-motorized or public transportation benefits should be provided to staff to reduce their parking needs.
  - Alternative class times may need to be staggered further, such as to start one class session after a separate class session has ended, which is similar to the current school schedule.
  - During events provide overflow parking on the playfield.

- Have an agreement to use the park facilities during the occasional campus event and work with Bainbridge Island police to support cross maneuvers across Arrow Point Drive.

- Offsite Circulation:
  - Require, if approved by the City, drivers to circulate through the park if stacking becomes an issue.
- Outline penalties for parents and staff who fail to meet the established guidelines.

In conclusion, the expanded campus will generally support the typical daily needs of the school. The site accesses do not satisfy the City's spacing requirements; however, with limited park activity during the morning period when the school generates its highest trip demand the accesses are anticipated to operate reasonably well.

We recommend working with staff and parents to minimize onsite parking needs throughout the day. As space allows, the school should explore additional parking, if it is determined that additional parking is needed.

Also, we recommend working with parents and school officials to ensure there is no activity on campus between 4:00 and 6:00 PM. If campus traffic is identified within this time frame, the school may then be subject to the prevailing transportation impact fee schedule with fees based actual number of trips being generated by the proposed expansion only.

Lastly, we recommend establishing a written agreement between the school and Battle Point Park to formally allow parents to circulate through the park while waiting for students and to not stack on Arrow Point Road.

We trust that this technical memorandum will assist you with your planning needs. Please contact TSI at your convenience.

Thank you,
Transportation Solutions, Inc.

Jeffrey P. K. Hee, PE
Project Engineer

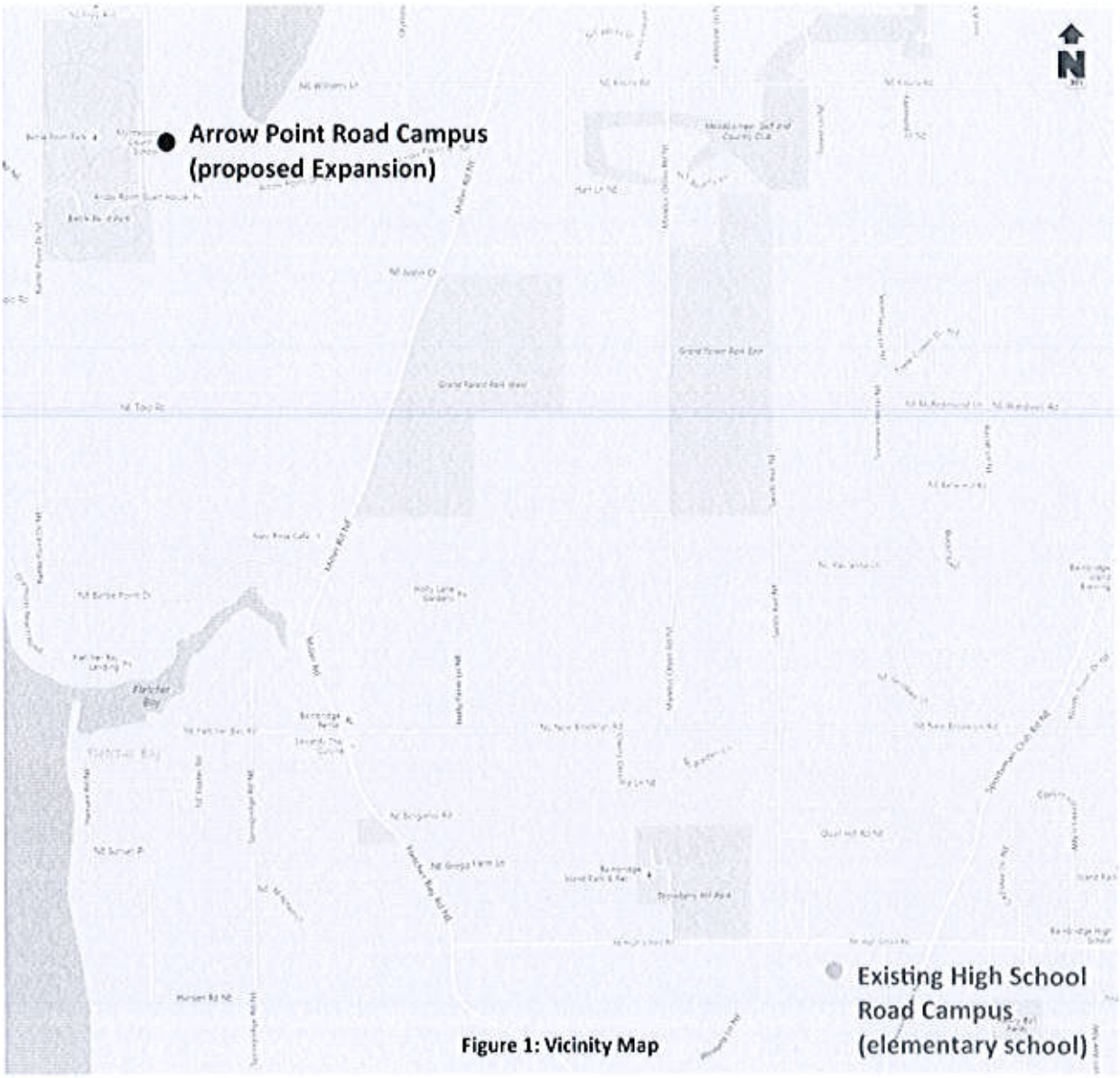

Figure 1: Vicinity Map

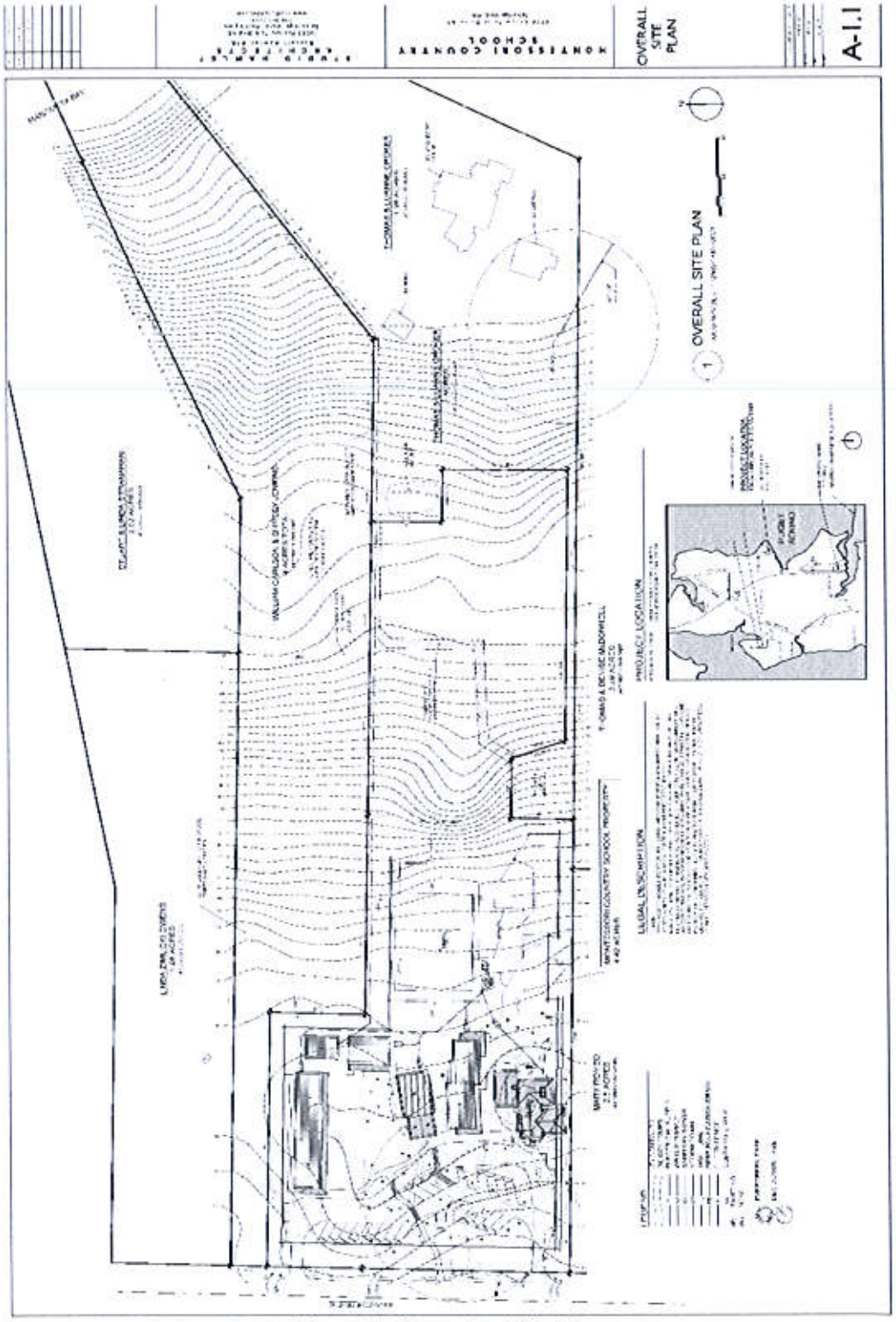

Figure 2: Conceptual Site Plan

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December 14, 2016

Janelle Hitch, PE
Development Engineer
City of Bainbridge Island
280 Madison Avenue N
Bainbridge, Island 98110

Subject: Montessori Country School Expansion
Bainbridge Island, Washington

Dear Ms. Hitch,

This traffic analysis is in addition to the February 28, 2016 traffic impact analysis (TIA) prepared for Montessori County School for their proposed campus expansion. This analysis reviews the findings and conclusions from the February 2016 TIA in addition to evaluating intersection level of service (LOS) at Arrow Point Road and Miller Road during the morning and afterschool peak hours.

Project Description

Montessori Country School, the Applicant, is proposing to consolidate and expand their existing campus, located at 10994 Arrow Point Road, from 113 students to 148 students. Elementary classes will be relocated to this site from the school's 8225 High School Road campus.

A vicinity map is attached for reference as **Figure 1**.

Table 1 compares the existing to proposed campus student populations by class type. The proposed student population has not changed since the February 28, 2016 TIA.

Table 1: Existing and Proposed Campus Plans

Existing	Students	Class Schedule	Proposed	Students	Class Schedule
Preschool	24	8:30 AM-11:30 AM	Preschool	48	8:30 AM-11:30 AM
Preschool	11	8:45 AM-11:00 AM	Preschool	15	8:45 AM-11:15 AM
Preschool	23	12:30 PM-3:30 PM	Kindergarten	21	8:30 AM-3:30 PM
Kindergarten	24	8:30 AM-11:30 AM	Elementary	37	8:00 AM-3:00 PM
Elementary	31	8:00 AM-3:00 PM	Elementary (future)	21	8:00 AM-3:00 PM

The future campus is planned with 18 total staff members. Like current policy, the campus will be closed at 4:00 PM and no students or staff are anticipated on campus after 4:00 PM.

A conceptual campus plan is attached as **Figure 2**. Build-out is anticipated by 2018.

Vehicle Trip Generation

Table 2 summarizes the trip generation breakdown by grade and class times from the existing and future school. The following assumptions were made:

1. All students arrive within a 30-minute period prior to the start of classes.
2. All students depart within a 15-minute period after their class ends.

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February 18, 2016

Meghan Skotheim
Montessori Country School
10994 Arrow Point Drive
Bainbridge, Island 98110

c/o: Brandon Hogg, Studio Hamlet Architects

Subject: Montessori Country School Expansion
Bainbridge Island, Washington

Dear Ms. Skotheim,

This traffic analysis and recommendations report is intended to address traffic and circulation impacts related to expansion of the Montessori Country School campus located at 10994 Arrow Point Road. A vicinity map highlighting the campus is attached as **Figure 1**.

Montessori Country School operates out of two campus located at 10944 Arrow Point Road (preschool and kindergarten students) and at 8225 High School Road (elementary students). The school plans to consolidate students and expand the Arrow Point Road campus. **Table 1** compares the existing to proposed campus student populations by class type (preschool, kindergarten, and elementary).

Table 1: Existing and Proposed Campus Plans

Existing	Students	Class Schedule	Proposed	Students	Class Schedule
Preschool	24	8:30 AM-11:30 AM	Preschool	48	8:30 AM-11:30 AM
Preschool	11	8:45 AM-11:00 AM	Preschool	15	8:45 AM-11:15 AM
Preschool	23	12:30 PM-3:30 PM	Kindergarten	21	8:30 AM-3:30 PM
Kindergarten	24	8:30 AM-11:30 AM	Elementary	37	8:00 AM-3:00 PM
Elementary	31	8:00 AM-3:00 PM	Elementary (future)	21	8:00 AM-3:00 PM

The future campus is planned with 18 total staff members. Similar to the school's current policy, the campus will be closed at 4:00 PM and no students or staff are anticipated on campus after 4:00 PM. In total the future campus is proposed with 25 on-campus parking stalls. A conceptual campus plan is provided at **Figure 2**.

Vehicle accesses are proposed at the south (inbound only) and north (outbound only) ends of the campus. The school's north-outbound access is located approximately 80 feet north of the inbound only access to Battle Point Park and 180 feet north from the school's south-inbound access. The school's south-inbound access is located approximately 60 feet south of the outbound inbound only access to Battle Point Park.

The report includes an assessment of vehicle trip generation, review of site access spacing and campus circulation, transportation impact fees, and our recommendations.

Vehicle Trip Generation

Table 2 breaks down the numbers of students per class and resulting number of student vehicle trips, based on the anticipated class schedules, presented previously. The following assumptions were made:

1. All students arrive within a 30 minute period prior to the start of classes.
2. All students depart within a 15 minute period after their class ends.
3. A portion of the student population will arrive together with families having multiple children at the school and also via carpooling. This study assumes a conservative ratio of 1.2 students per car based on information provided by school officials.
4. Trips were computed by multiplying the student arrivals (spread equally within the 15 minute period by the student per car ratio of 1.2.

Table 2: Future Student Schedule and Related Vehicle Trips

Start Time	Preschool (8:30A-11:30A)		Preschool (8:45A-11:15A)		Kindergarten (8:30A-3:30P)		Elementary (8:00A-3:00P)		Elementary (8:00A-3:00P)		Student-Related Vehicle Trips		
	Kids [1]	Trips	Kids [1]	Trips	Kids [1]	Trips	Kids [1]	Trips	Kids [1]	Trips	In	Out	Total
7:30A							37	46	21	26	48	23	72
8:00A	48	60	7	6	21	26		16		9	63	53	117
8:30A		20	8	19		9					7	42	49
9:00A													
9:30A													
10:00A													
10:30A													
11:00A		40	15	25							53	13	68
11:30A	48	40										40	40
12:00P													
12:30P													
1:00P													
1:30P													
2:00P													
2:30P						18		31		18	66		66
3:00P					21	18	37	31	21	18		66	66
Totals	**96**	**160**	**30**	**50**	**42**	**70**	**74**	**123**	**42**	**70**	**237**	**237**	**473**

1. Kids = Students

Not included in the above table are vehicle trips related to staff and teachers, who arrive prior to the students to get ready for the day's class and support student drop-off and pick-up. Additionally not accounted for are those few parents who may park and stay on campus through their student's classes to support and participate in school activities.

The future campus is projected to generate 473 total student-related trips. The peak hour traffic volumes occur between 7:45 AM and 8:45 AM at the school driveways, with 207 vehicle trips. Preschool classes (63 students) end by 11:30 and kindergarten classes (21 students) and elementary classes (58 students) end by 3:00 PM. All students are expected to depart the campus around 3:00 PM at the end of the last classes. Staff will also depart by 4:00 PM when the school closes.

Using a similar procedure to compute existing student-related trips, the existing campuses generates 377 student-related trips and has a peak traffic impact of 145 vehicle trips also between 7:45 AM and

8:45 AM. Compared to the existing school, the expanded campus will have 29 additional students and generate 97 more daily vehicle trips.

Site Accesses

Arrow Point Road is a two lane collector arterial with a posted speed limit of 35 mph fronting the campus and Battle Point Park.

Bainbridge Island Design Standards indicate the minimum access spacing requirement is 135 feet between adjacent access points and streets.

The south campus access is 60 feet south from the access to Battle Point Park and the north campus access is 80 feet north of the access to Battle Point Park. The site accesses do not satisfy the City's spacing requirements; the following outlines why the proposed site access locations are reasonable:

- The location of the south campus access is at the existing south driveway to the current Arrow Point Road campus. The future campus would increase the width between the inbound and one outbound campus accesses to provide more onsite area for vehicles to circulate.
- Per data collected on Arrow Point Road west of Miller Road on Tuesday and Wednesday, June 10 and 11, 2014 traffic volumes in the vicinity of the school campus and Battle Point Park are not significant. In the AM peak hour (7:30-8:30 AM) there are 60 vehicle trips eastbound, approaching Miller Road, and 48 vehicles trips westbound, departing Miller Road and approaching the Battle Point Park area.
- Per the Institute of Transportation Engineers (ITE) *Parking Generation, 4th Edition* (2010) a City Park use generates its highest levels of parking demand around 1 PM. Based on the year 2014 peak hour traffic volumes, activity at Battle Point Park is likely to be not significant, especially during school hours.
- When school traffic is expected to be at its peak, between 7:30 and 8:30 AM, corresponding to the start of classes, park activity is very minimal. Thus, minimizing potential conflicts between vehicles related to park activity and school trips.

Table 3 summarizes our field review of the sight distance at both campus driveway locations. Intersection sight distance does not apply at the inbound only driveway. The sightlines at the campus driveways satisfy AASHTO guidelines.

Table 3: Sight Distance

Location	Orientation	Sight Distance [1]	Requirement [2]	Field Measure	Okay?
North Driveway (outbound)	Looking North	Intersection	500 feet	500 feet	Yes
		Stopping	360 feet	500 feet	Yes
	Looking South	Intersection	500 feet	500 feet	Yes
		Stopping	360 feet	500 feet	Yes
South Driveway (inbound)	Looking North	Stopping	360 feet	500 feet	Yes
	Looking South	Stopping	360 feet	500 feet	Yes

1. Intersection sight distance, for vehicles entering the major roadway (Arrow Point Drive)
   Stopping sight distance, for approaching vehicles to see an object at the edge of the driveway
2. AASHTO Green Book, 6th Edition (2011), with a 45 mph design speed

Circulation

On site traffic flows from south to north. A total of 25 onsite parking spaces are proposed. The majority will be utilized by school staff. As indicated previously, up to 18 teachers and staff are projected at the future campus.

The proposed campus expansion provides increased circulation, with inbound only and outbound only accesses, more onsite parking, and drop-off and pick-up space totaling 120 feet, or between 6 and 8 cars. Drop-off and pick-up zones are separate for the elementary students (60 feet of drop-off and pick-up space) and preschool and kindergarten students (60 feet of drop-off and pick-up space). In general, most preschool aged children will have parents walking them into the school or to an adult supervisor waiting to walk them into the school.

Class start and end times are staggered to space out the time periods for student drop-offs and pick-ups. Typical school related traffic patterns show short surges in traffic at the start of classes and then lengthy periods with minimal traffic activity. Staggered class times space out the surges to allow onsite traffic to generally clear prior to the next surge of traffic associated with a following class.

As we understand, policy is for parents/guardians to circulate through Battle Point Park when traffic began to back up on Arrow Point Road, due to the limited turnaround area and drop-off and pick-up space on the existing campus. A similar policy is likely to be provided with the future campus. With limited park activity during periods when school traffic is at its highest, this is not likely to be a major issue.

Parking

The preschool and kindergarten student population is 84 students and the elementary school student population is up to 58 students.

Bainbridge Island Municipal Code Table 18.15.020-1: Off-Street Parking Spaces Required for Residential, Neighborhood Service Center, Business/Industrial, and Water-Dependent Industrial Zone Districts requires 1 parking stall per 50 elementary students plus 1 stall per elementary school employee.

The Code does not have a specific parking requirement for preschool or kindergarten uses. Thus, the preschool or kindergarten parking needs were reviewed using the parking requirements for a day care land use. The Code requires 1 parking stall per on-duty employee and 1 stall per every 12 adults or children served by the facility.

Table 4 includes the campus's parking requirements based on the Bainbridge Island Code's day care and elementary parking ratios.

Table 4: Code Parking Requirements

Land Use	Persons	Parking Ratio	Parking Required
Day Care	84 students	1 stall per 12 children	7 stalls
	13 teachers/staff	1 stall per adult	13 stalls
Elementary	59 students	1 stall per 50 students	1 stalls
	5 teachers/staff	1 stall per teacher	5 stalls
Total			26 stalls

The proposed parking supply falls just short of the offsite parking requirements by one stall.

Transportation Impact Fees

Site expansion is subject to the City of Bainbridge Island's traffic impact fee ordinance (Ordinance No. 2015-07). The City's fee schedule identifies the fee for "Private School K-8" is $5,338.18 per 1,000 sq. ft. of new school space. Transportation impact fees are assessed based on the forecasted number of new PM peak hour trips. And the PM peak hour is defined by the City as; "the highest volume of traffic for a continuous hour between 4:00 PM and 6:00 PM".

The campus is closed at 4:00 PM; and thus, no traffic is projected during the PM peak hour period. The school expansion does not meet the City's requirement for payment of traffic impact fees.

Recommended Program to Facilitate Transportation and Parking Management of the Campus

- Traffic Generation:
  - Encourage faculty and staff to carpool or use non-motorized or public transportation. Kitsap Transit Route #95 provides weekday AM service between 4:45 and 8:00 AM and weekday PM services between 3:45 PM and 7:00 PM on Arrow Point Road.
  - Encourage student-families to carpool.
  - Provide a centralized area (or webpage) to post carpool, walking and transit opportunities.
- Onsite Circulation:
  - Staff both curbside drop-off and pick-up areas to facilitate and support efficient student drop-off and pick-up.
  - Staff the onsite parking area to assist students and parents who need to park and walk their children into the school or to a staff supervisor. Staff should also be provided to support crossing maneuvers onsite.
- Pick-up and drop off:
  - Provide guidelines to parents, whereby students must be on the passenger side (curbside) of the vehicle during drop-off and pick-up and that school bags and other related items must be with the student during drop-off and pick-up to make drop-off and pick-up as efficient as possible.
  - Drivers will be required to remain in their vehicles during student drop-off and pick-up times.
  - Drivers may pull in front on an idling vehicle to drop-off or pick-up students.
  - Staff will attempt to maximize use of the drop off area.
- Parking:
  - Encourage carpooling, to reduce the need to park on campus.
  - Carpool, non-motorized or public transportation benefits should be provided to staff to reduce their parking needs.
  - Alternative class times may need to be staggered further, such as to start one class session after a separate class session has ended, which is similar to the current school schedule.
  - During events provide overflow parking on the playfield.

- Have an agreement to use the park facilities during the occasional campus event and work with Bainbridge Island police to support cross maneuvers across Arrow Point Drive.

- Offsite Circulation:
  - Require, if approved by the City, drivers to circulate through the park if stacking becomes an issue.
- Outline penalties for parents and staff who fail to meet the established guidelines.

In conclusion, the expanded campus will generally support the typical daily needs of the school. The site accesses do not satisfy the City's spacing requirements; however, with limited park activity during the morning period when the school generates its highest trip demand the accesses are anticipated to operate reasonably well.

We recommend working with staff and parents to minimize onsite parking needs throughout the day. As space allows, the school should explore additional parking, if it is determined that additional parking is needed.

Also, we recommend working with parents and school officials to ensure there is no activity on campus between 4:00 and 6:00 PM. If campus traffic is identified within this time frame, the school may then be subject to the prevailing transportation impact fee schedule with fees based actual number of trips being generated by the proposed expansion only.

Lastly, we recommend establishing a written agreement between the school and Battle Point Park to formally allow parents to circulate through the park while waiting for students and to not stack on Arrow Point Road.

We trust that this technical memorandum will assist you with your planning needs. Please contact TSI at your convenience.

Thank you,
Transportation Solutions, Inc.

Jeffrey P. K. Hee, PE
Project Engineer

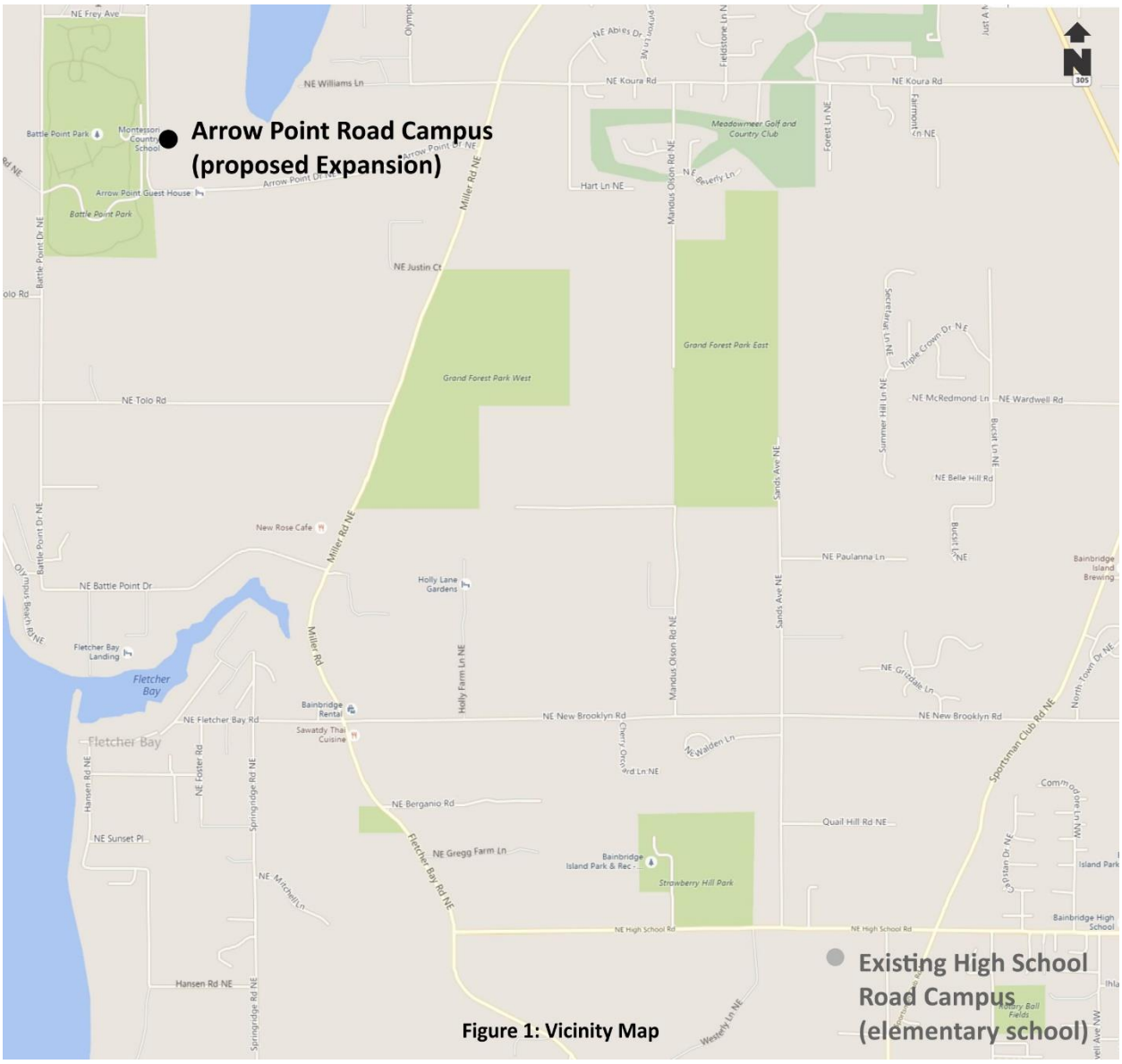


Figure 1: Vicinity Map

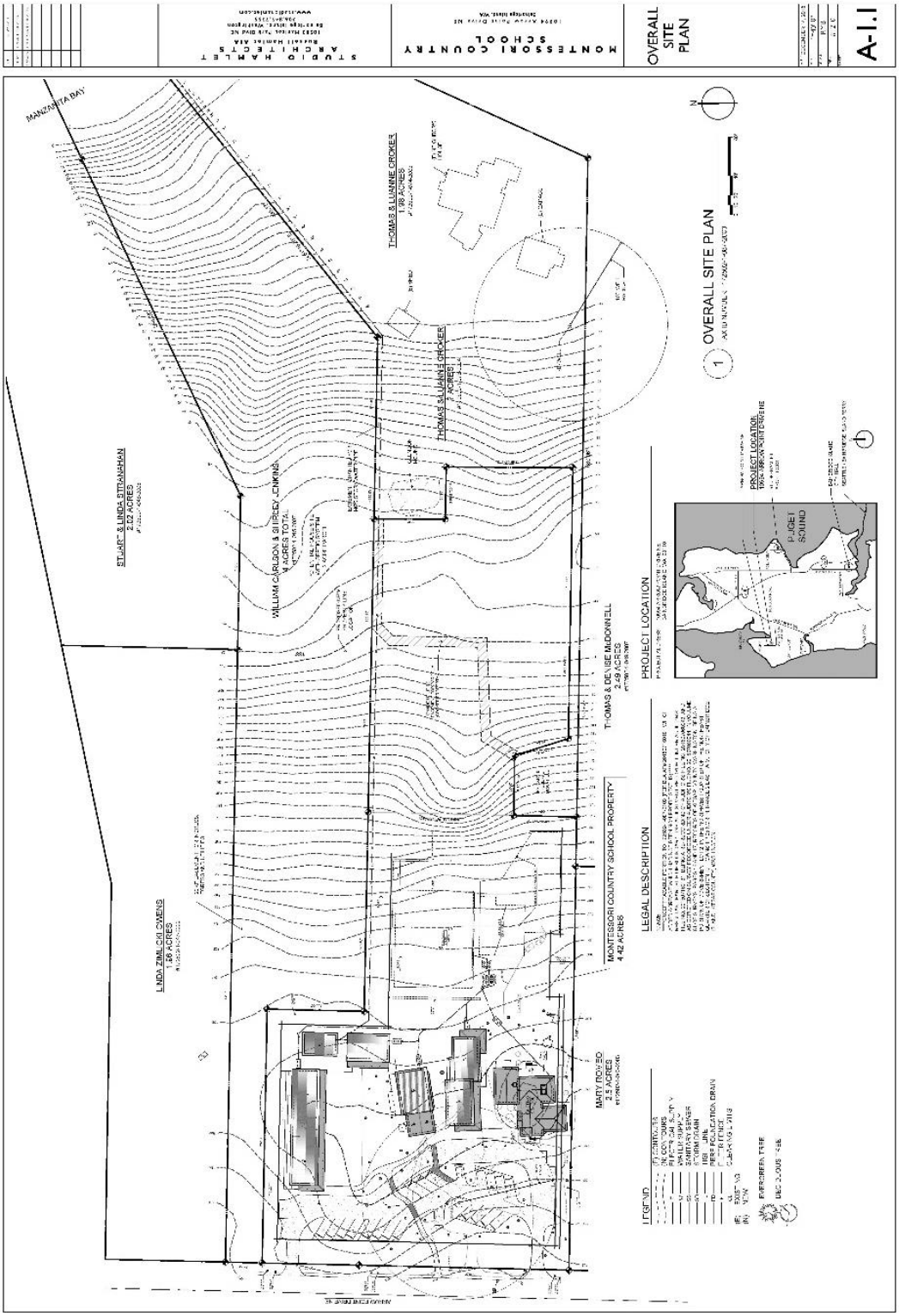


Figure 2: Conceptual Site Plan

3. This study assumes a conservative ratio of 1.2 students per vehicle to account for families with multiple children at the school and carpooling.
4. Trips were computed by multiplying the student arrivals by the student per car ratio of 1.2.
5. The elementary population is new to this site, since elementary classes are new to this campus.
6. Staffing is anticipated to double.

Table 2: Future Student Schedule and Related Vehicle Trips

Start	Pre-School		Kindergarten		Elementary		Staff		New Trips (Future - Existing)		
Time	Exist.	Future	Exist.	Future	Exist.[1]	Future	Exist.	Future	In	Out	Total[2]
7:00A	0	0	0	0	0	0	9	18	9	0	9
7:30A	0	0	0	46	0	26	0	0	48	23	72
8:00A	34	92	30	16	0	9	0	0	19	33	53
8:30A	24	48	10	0	0	0	0	0	2	13	14
9:00A	0	0	0	0	0	0	0	0	0	0	0
9:30A	0	0	0	0	0	0	0	0	0	0	0
10:00A	0	0	0	0	0	0	0	0	0	0	0
10:30A	9	0	0	0	0	0	0	0	(9)	0	(9)
11:00A	29	65	20	0	0	0	0	0	13	3	16
11:30A	29	40	20	0	0	0	0	0	(9)	0	(9)
12:00P	29	0	0	0	0	0	0	0	(10)	(19)	(29)
12:30P	0	0	0	0	0	0	0	0	0	0	0
1:00P	0	0	0	0	0	0	0	0	0	0	0
1:30P	0	0	0	0	0	0	0	0	0	0	0
2:00P	0	0	0	0	0	0	0	0	0	0	0
2:30P	0	18	0	31	0	18	0	0	66	0	66
3:00P	19	18	0	31	0	18	0	0	(19)	66	47
3:30P	19	0	0	0	0	0	9	18	0	(10)	(10)
4:00P	0	0	0	0	0	0	0	0	0	0	0
4:30P	0	0	0	0	0	0	0	0	0	0	0
Totals	193	280	80	123	0	70	18	36	109	109	218

1. Elementary students are all new to the Arrow Point Road campus
2. For reporting purposes, reductions in (negative) new trips are equivalent to zero trips

The future campus is projected to generate 474 total daily student trips, split 237 in and 237 out.

New trips generated by the proposed campus expansion:

- 218 new daily trips (students and staff)
- 124 new AM peak hour trips between 7:30 AM and 8:30 AM
- 132 new PM peak hour trips between 2:15 PM and 3:15 PM
- 37 new PM peak hour trips between 3:00 PM and 4:00 PM

Intersection Volumes - Arrow Point Road and Miller Road

Existing year 2016 morning (7-9 AM) and afternoon (2-5 PM) intersection volumes were collected on Tuesday, December 1, 2016. Peak hour traffic hours evaluated for this study are between 7:30 and 8:30 AM, 2:00 and 3:00 PM and 3:00 and 4:00 PM.

Year 2018 traffic volumes without the expansion were forecast to evaluate incremental traffic impacts associated with the expansion. Year 2018 corresponds to build-out of the proposed expansion. Future without-expansion traffic volumes include growth related new development and general traffic growth in the regional area. Future 2018 conditions were forecast by applying a 1% annual growth rate to the existing intersection volumes.

The 1% growth rate is conservative. The City's Comprehensive Plan indicates that at Arrow Point Road and Miller Road the annual traffic growth is about 0.8% annually and growth on Arrow Point Road is about 0.6% annually.

Expansion trips were distributed to the Arrow Point Road and Miller Road intersection based on existing traffic patterns.

Future year 2018 traffic volumes with the school expansion were forecast by adding school-generated traffic volumes to the future without-expansion volumes.

Future year 2040 traffic volumes with the school expansion were forecast to address far-term traffic concurrency impacts. The 2040 conditions also include a 1% annual growth rate and expansion trips.

Figures 3, 4 and 5 illustrate the existing and future intersection volumes between the hours of 7:30 and 8:30 AM, 2:00 and 3:00 PM and 3:00 and 4:00 PM, respectively.

Level of Service - Arrow Point Road and Miller Road

Intersection level of service (LOS) was computed at Arrow Point Road and Miller Road using the Synchro computer program with HCM 2010 methodology. Table 3 summarizes the LOS, delay and volume-to-capacity (V/C) ratio.

The City of Bainbridge's LOS standard is LOS D. Future intersection volumes with the expansion satisfy the LOS standard.

Table 3: Arrow Point Road and Miller Road Intersection Level of Service

Study Period	2016 Existing			2018 w/o Expansion			2018 with Expansion			2040 with Expansion		
	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
7:30A-8:30A	B	14.6	0.17	B	14.8	0.17	C	18.5	0.34	C	24.0	0.45
2:00P-3:00P	B	11.4	0.11	B	11.5	0.12	B	13.6	0.26	C	15.0	0.30
3:00P-4:00P	B	13.5	0.19	B	13.7	0.20	B	14.6	0.28	C	18.1	0.38

Site Accesses

Arrow Point Road is a two-lane collector arterial with a posted speed limit of 35-mph fronting the campus and Battle Point Park.

Per the Institute of Transportation Engineers (ITE) *Parking Generation, 4th Edition* (2010) a City Park use generates its highest levels of parking demand around 1 PM. Based on the year 2014 peak hour traffic volumes, activity at Battle Point Park is likely to be not significant, especially during school hours. The expanded campus is forecast to generate about 66 trips between 1 PM and 2 PM, with all traffic occurring at the tail end of the hour based on the classes beginning to the let out.

When school traffic is expected to be at its peak, between 7:30 and 8:30 AM, corresponding to the start of classes, park activity is very minimal. Thus, minimizing potential conflicts between vehicles related to park activity and school trips.

Table 4 summarizes our field review of the sight distance at both campus driveway locations. Intersection sight distance does not apply at the inbound only driveway. The sightlines at the campus driveways satisfy AASHTO guidelines.

Table 4: Sight Distance

Location	Orientation	Sight Distance [1]	Requirement [2]	Field Measure	Okay?
North Driveway (outbound)	Looking North	Intersection	500 feet	500 feet	Yes
		Stopping	360 feet	500 feet	Yes
	Looking South	Intersection	500 feet	500 feet	Yes
		Stopping	360 feet	500 feet	Yes
South Driveway (inbound)	Looking North	Stopping	360 feet	500 feet	Yes
	Looking South	Stopping	360 feet	500 feet	Yes

1. Intersection sight distance, for vehicles entering the major roadway (Arrow Point Drive)
   Stopping sight distance, for approaching vehicles to see an object at the edge of the driveway
2. AASHTO Green Book, 6th Edition (2011), with a 45-mph design speed

Circulation

On-site traffic flows from south to north.

The proposed campus expansion provides increased circulation, with inbound only and outbound only accesses, more onsite parking, and drop-off and pick-up space totaling 120 feet, or between 6 and 8 cars. Drop-off and pick-up zones are separate for the elementary students (60 feet of drop-off and pick-up space) and preschool and kindergarten students (60 feet of drop-off and pick-up space). In general, most preschool aged children will have parents walking them into the school or to an adult supervisor waiting to walk them into the school.

Class start and end times are staggered to space out the time periods for student drop-offs and pick-ups. Typical school related traffic patterns show short surges in traffic at the start of classes and then lengthy periods with minimal traffic activity. Staggered class times space out the surges to allow onsite traffic to generally clear prior to the next surge of traffic associated with a following class.

As we understand, policy is for parents/guardians to circulate through Battle Point Park when traffic began to back up on Arrow Point Road, due to the limited turnaround area and drop-off and pick-up space on the existing campus. A similar policy is likely needed with the future campus. With limited park activity during periods when school traffic is at its highest, this is not likely to be a major issue.

Transportation Impact Fees

Site expansion is subject to the City of Bainbridge Island's traffic impact fee ordinance (Ordinance No. 2015-07). The City's fee schedule identifies the fee for "Private School K-8" is $5,338.18 per 1,000 sq. ft. of new school space. Transportation impact fees are assessed based on the forecasted number of new PM peak hour trips. And the PM peak hour is defined by the City as; "the highest volume of traffic for a continuous hour between 4:00 PM and 6:00 PM".

The campus is closed at 4:00 PM; and thus, no traffic is projected during the PM peak hour period. Technically, the proposed expansion does not meet the City of Bainbridge Island's requirement for payment of traffic impact fees.

Conclusions and Recommendations

In conclusion, the expanded campus will support the proposed expansion. Circulation at the site accesses is projected to operate sufficiently, due to limited activities on Arrow Point Road in the vicinity of the site during times when the school is active.

The Applicant should develop a plan with their families and staff to minimize onsite parking needs throughout the day. Additionally, as space allows, the school should explore additional parking opportunities.

The Applicant is also recommended to establish an agreement with the City of Bainbridge for use of Battle Point Park for traffic circulation through the park, if needed, to offset any potential stacking concerns on Arrow Point Road.

An outline of possible, transportation and parking demand management measures was outlined in the February 28, 2016 TIA report, which is attached for reference.

We trust that this technical memorandum will assist you with your planning needs. Please contact TSI at your convenience.

Thank you,
Transportation Solutions, Inc.

Jeffrey P. K. Hee, PE
Project Engineer

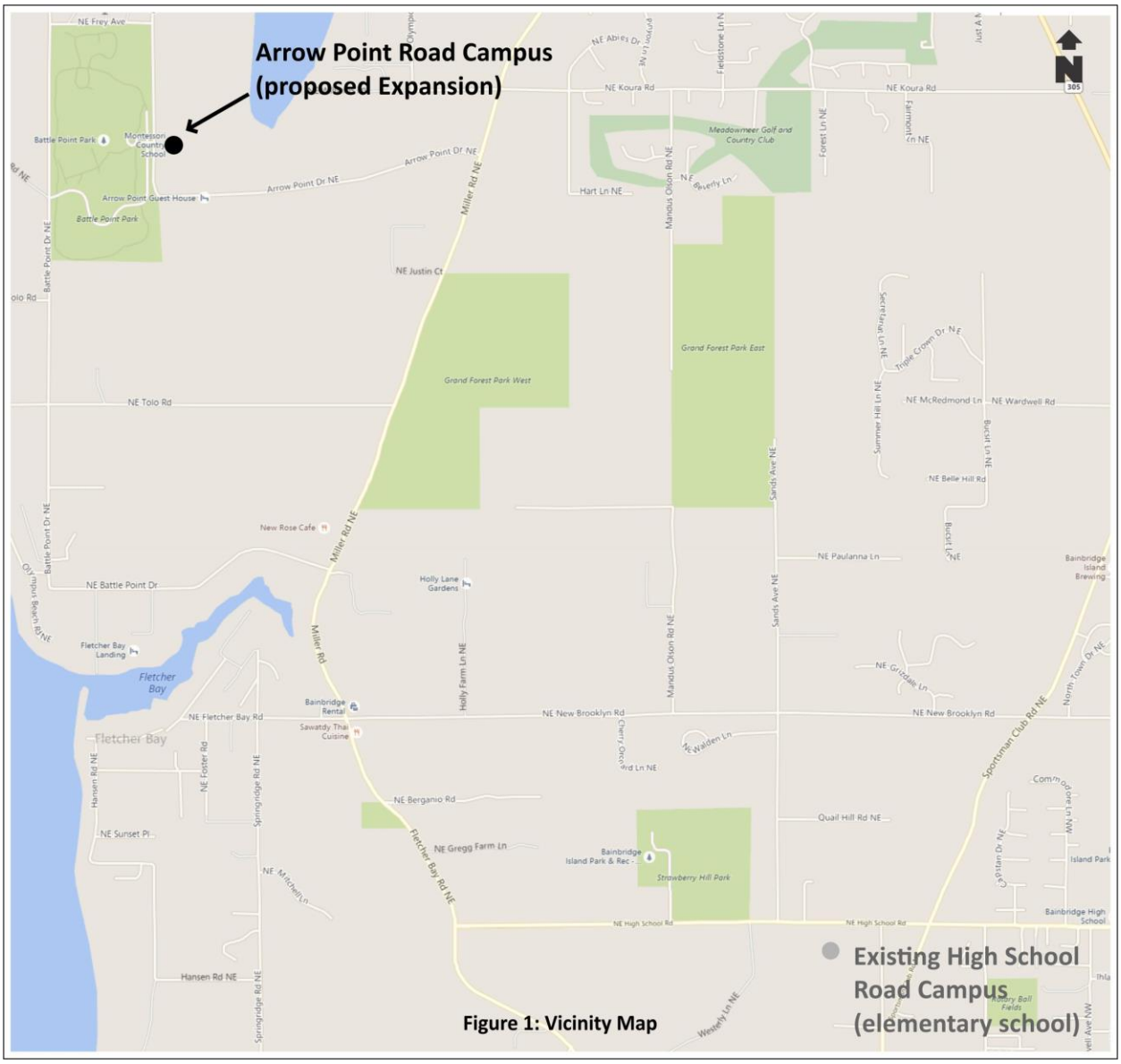


Figure 1: Vicinity Map

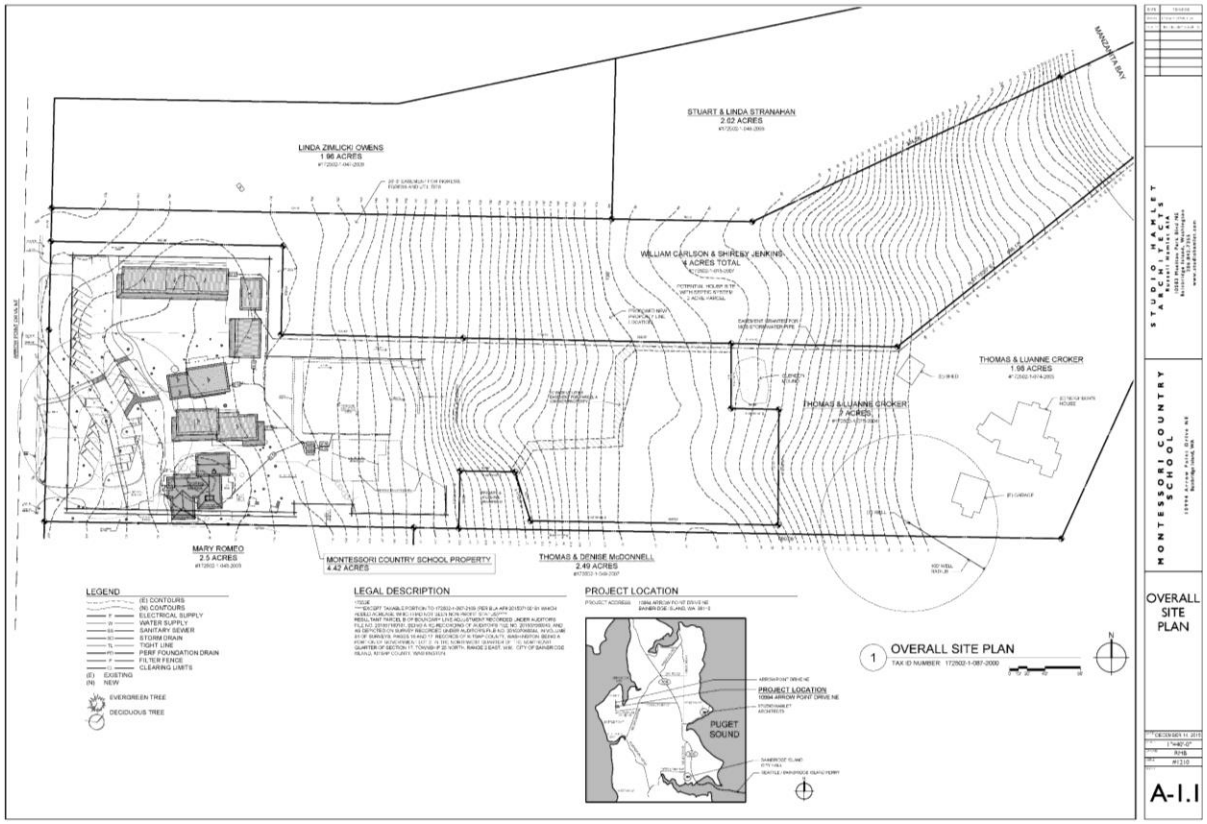


Figure 2: Conceptual Site Plan

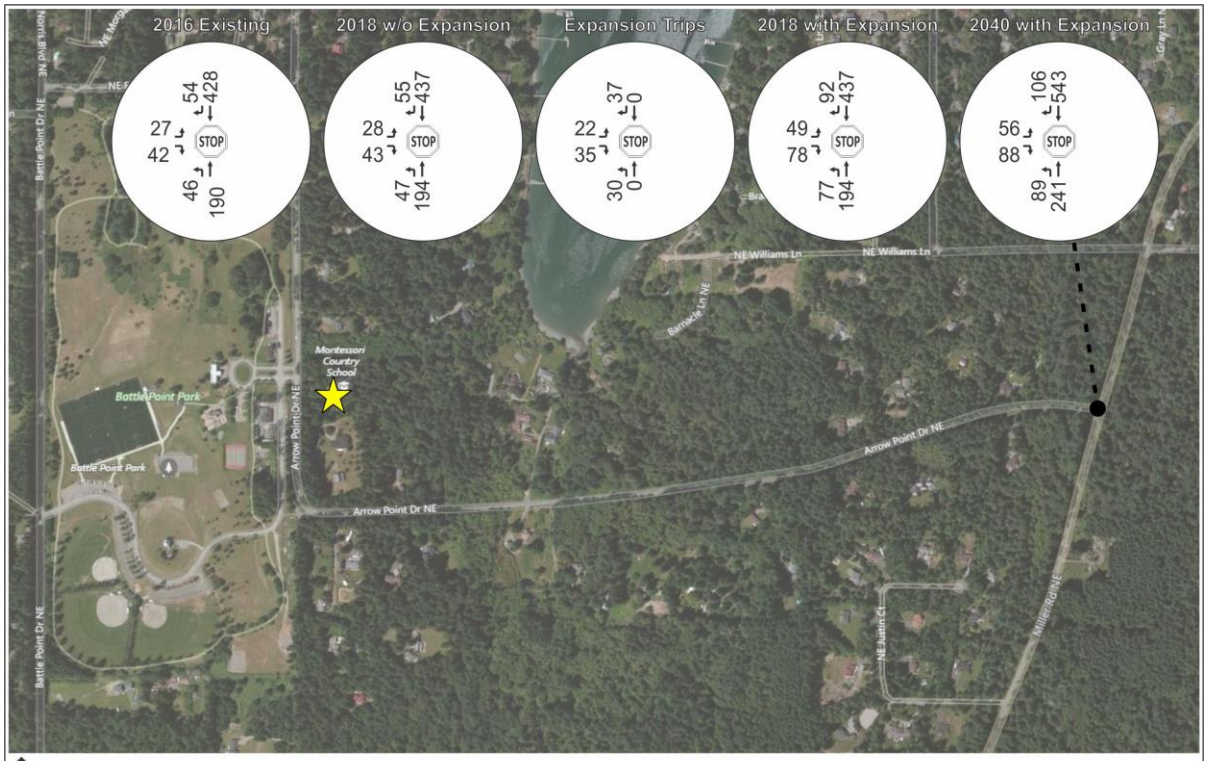


Figure 3: AM Peak Hour (7:30-8:30 AM) Volumes

Figure 4: After School Peak Hour (2:00-3:00 PM) Volumes

Figure 5: PM Peak Hour (3:00-4:00 PM) Volumes

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

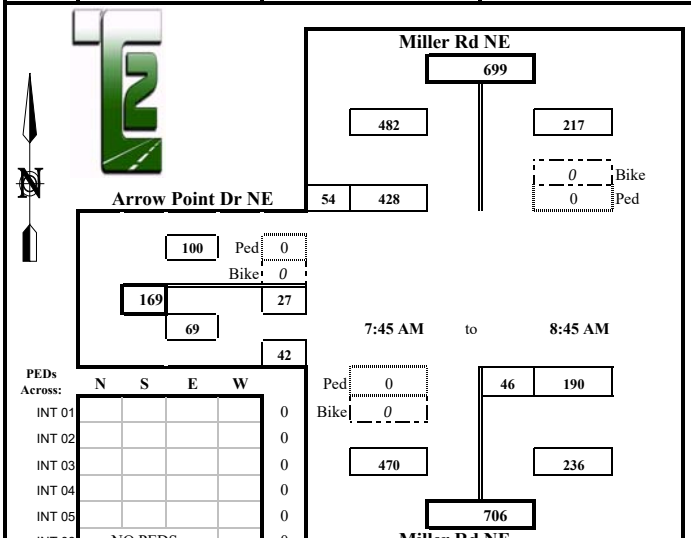
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Miller Rd NE & Arrow Point Dr NE **Date of Count:** Thurs 12/01/2016

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Miller Rd NE				From South on (NB) Miller Rd NE				From East on (WB) 0				From West on (EB) Arrow Point Dr NE				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	28	3	3	2	21	0	0	0	0	0	0	4	0	3	61
7:30 A	3	0	46	5	0	2	35	0	0	0	0	0	1	5	0	7	100
7:45 A	4	0	91	6	2	3	44	0	0	0	0	0	0	6	0	5	155
8:00 A	2	0	105	13	1	10	37	0	0	0	0	0	1	3	0	12	180
8:15 A	5	0	106	7	1	7	55	0	0	0	0	0	0	5	0	6	186
8:30 A	3	0	108	15	0	17	51	0	0	0	0	0	0	9	0	8	208
8:45 A	8	0	109	19	1	12	47	0	0	0	0	0	0	10	0	16	213
9:00 A	2	0	57	12	3	8	52	0	0	0	0	0	0	13	0	17	159
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	27	0	650	80	11	61	342	0	0	0	0	0	2	55	0	74	1262
	Peak Hour: 7:45 AM to 8:45 AM																
Total	18	0	428	54	3	46	190	0	0	0	0	0	1	27	0	42	787
Approach	482				236				0				69				787
%HV	3.7%				1.3%				n/a				1.4%				2.8%
PHF	0.94				0.87				n/a				0.66				0.92



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

852 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.66	1.4%
Check	WB	n/a	n/a
In: 787	NB	0.87	1.3%
Out: 787	SB	0.94	3.7%
	T Int.	0.92	2.8%

Conditions:

Special Notes

TSI16132M_01a

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

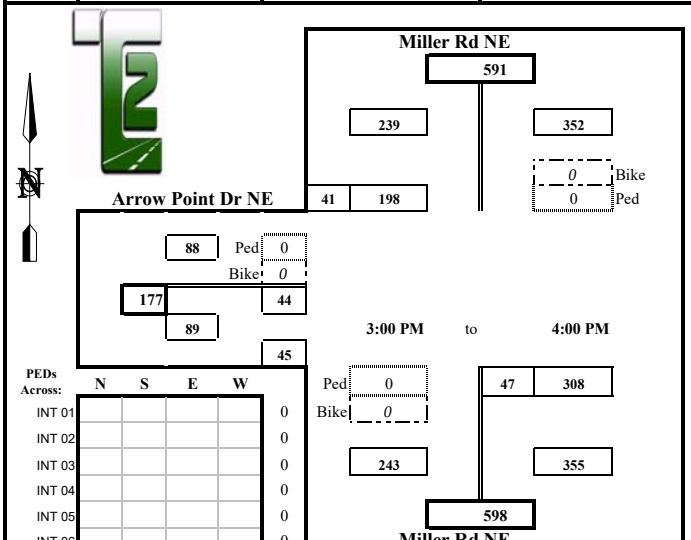
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Miller Rd NE & Arrow Point Dr NE **Date of Count:** Thurs 12/01/2016

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Miller Rd NE				From South on (NB) Miller Rd NE				From East on (WB) 0				From West on (EB) Arrow Point Dr NE				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
2:15 P	1	0	41	9	2	3	50	0	0	0	0	0	0	8	0	9	120
2:30 P	2	0	42	8	1	8	47	0	0	0	0	0	1	6	0	7	118
2:45 P	4	0	40	11	2	12	52	0	0	0	0	0	0	8	0	10	133
3:00 P	3	0	69	10	2	8	42	0	0	0	0	0	0	7	0	8	144
3:15 P	0	0	54	6	7	8	82	0	0	0	0	0	0	8	0	7	165
3:30 P	1	0	49	12	2	19	84	0	0	0	0	0	0	15	0	12	191
3:45 P	0	0	49	14	1	9	80	0	0	0	0	0	0	9	0	14	175
4:00 P	1	0	46	9	1	11	62	0	0	0	0	0	1	12	0	12	152
4:15 P	3	0	58	9	0	4	72	0	0	0	0	0	1	12	0	8	163
4:30 P	0	0	41	8	3	7	79	0	0	0	0	0	0	3	0	5	143
4:45 P	1	0	46	3	4	8	91	0	0	0	0	0	0	14	0	11	173
5:00 P	0	0	57	11	0	11	93	0	0	0	0	0	1	13	0	11	196
Total Survey	16	0	592	110	25	108	834	0	0	0	0	0	4	115	0	114	1873
Peak Hour: 3:00 PM to 4:00 PM																	
Total	2	0	198	41	11	47	308	0	0	0	0	0	1	44	0	45	683
Approach	239				355				0				89				683
%HV	0.8%				3.1%				n/a				1.1%				2.0%
PHF	0.95				0.86				n/a				0.82				0.89



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08			1		1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	0	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01	1				1
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

784 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.82	1.1%
Check	WB	n/a	n/a
In: 683	NB	0.86	3.1%
Out: 683	SB	0.95	0.8%
	T Int.	0.89	2.0%

Conditions:

TSI16132M_01p

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	42	46	190	428	54
Future Vol, veh/h	27	42	46	190	428	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	4	4
Mvmt Flow	29	46	50	207	465	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	802	495	524	0	-	0
Stage 1	495	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	355	577	1048	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	336	577	1048	-	-	-
Mov Cap-2 Maneuver	336	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	1.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1048	-	451	-	-
HCM Lane V/C Ratio	0.048	-	0.166	-	-
HCM Control Delay (s)	8.6	0	14.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	34	31	191	192	38
Future Vol, veh/h	29	34	31	191	192	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	33	38	35	215	216	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	521	237	258	0	-	0
Stage 1	237	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	517	804	1301	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	501	804	1301	-	-	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1301	-	629	-	-
HCM Lane V/C Ratio	0.027	-	0.113	-	-
HCM Control Delay (s)	7.8	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	45	47	308	198	41
Future Vol, veh/h	44	45	47	308	198	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	49	51	53	346	222	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	698	246	269	0	-	0
Stage 1	246	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	408	795	1289	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	795	1289	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	610	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1289	-	523	-	-
HCM Lane V/C Ratio	0.041	-	0.191	-	-
HCM Control Delay (s)	7.9	0	13.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	43	47	193	435	55
Future Vol, veh/h	27	43	47	193	435	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	4	4
Mvmt Flow	29	47	51	210	473	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	815	503	533	0	-	0
Stage 1	503	-	-	-	-	-
Stage 2	312	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	348	571	1040	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	329	571	1040	-	-	-
Mov Cap-2 Maneuver	329	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	1.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	445	-	-
HCM Lane V/C Ratio	0.049	-	0.171	-	-
HCM Control Delay (s)	8.6	0	14.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	35	32	194	195	39
Future Vol, veh/h	29	35	32	194	195	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	33	39	36	218	219	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	531	241	263	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	7.11	6.21	4.13	-	-	-
Critical Hdwy Stg 1	6.11	-	-	-	-	-
Critical Hdwy Stg 2	6.11	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	460	800	1295	-	-	-
Stage 1	765	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	449	800	1295	-	-	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	697	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.9	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1295	-	591	-	-
HCM Lane V/C Ratio	0.028	-	0.122	-	-
HCM Control Delay (s)	7.9	0	11.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	46	48	313	201	42
Future Vol, veh/h	45	46	48	313	201	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	51	52	54	352	226	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	709	249	273	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	402	792	1284	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	381	792	1284	-	-	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	605	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1284	-	516	-	-
HCM Lane V/C Ratio	0.042	-	0.198	-	-
HCM Control Delay (s)	7.9	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	49	78	77	193	435	92
Future Vol, veh/h	49	78	77	193	435	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	4	4
Mvmt Flow	53	85	84	210	473	100

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	900	523	573	0	-	0
Stage 1	523	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	310	556	1005	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	281	556	1005	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1005	-	404	-	-
HCM Lane V/C Ratio	0.083	-	0.342	-	-
HCM Control Delay (s)	8.9	0	18.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.5	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	70	60	194	195	76
Future Vol, veh/h	60	70	60	194	195	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	67	79	67	218	219	85

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	615	262	304	0	-	0
Stage 1	262	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	456	779	1251	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	428	779	1251	-	-	-
Mov Cap-2 Maneuver	428	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1251	-	565	-	-
HCM Lane V/C Ratio	0.054	-	0.259	-	-
HCM Control Delay (s)	8	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	64	48	313	201	42
Future Vol, veh/h	63	64	48	313	201	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	71	72	54	352	226	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	709	249	273	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	402	792	1284	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	381	792	1284	-	-	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	605	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1284	-	516	-	-
HCM Lane V/C Ratio	0.042	-	0.277	-	-
HCM Control Delay (s)	7.9	0	14.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	86	87	232	523	103
Future Vol, veh/h	55	86	87	232	523	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	4	4
Mvmt Flow	59	91	93	247	556	110

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1043	611	666	0	-	0
Stage 1	611	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	7.11	6.21	4.11	-	-	-
Critical Hdwy Stg 1	6.11	-	-	-	-	-
Critical Hdwy Stg 2	6.11	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	208	496	928	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	190	496	928	-	-	-
Mov Cap-2 Maneuver	190	-	-	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.7	2.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	928	-	305	-	-
HCM Lane V/C Ratio	0.1	-	0.492	-	-
HCM Control Delay (s)	9.3	0	27.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.3	-	2.6	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	77	66	234	235	84
Future Vol, veh/h	66	77	66	234	235	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	72	84	72	254	255	91

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	699	301	347	0	-	0
Stage 1	301	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	408	741	1206	-	-	-
Stage 1	753	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	379	741	1206	-	-	-
Mov Cap-2 Maneuver	379	-	-	-	-	-
Stage 1	753	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	1.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1206	-	514	-	-
HCM Lane V/C Ratio	0.059	-	0.302	-	-
HCM Control Delay (s)	8.2	0	15	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	72	74	57	377	242	50
Future Vol, veh/h	72	74	57	377	242	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	81	83	64	424	272	56

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	852	300	328	0	-	0
Stage 1	300	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	331	742	1226	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	308	742	1226	-	-	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1226	-	438	-	-
HCM Lane V/C Ratio	0.052	-	0.375	-	-
HCM Control Delay (s)	8.1	0	18.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.7	-	-

MONTESSORI
COUNTRY SCHOOL

June 7, 2016

City of Bainbridge Island

JUN 15 2016

Planning and
Community Development

Dan Hamlin
Park Services Division Director
Bainbridge Island Metro Park and Recreation District
7666 NE High School Road
Bainbridge Island, WA 98110

Dear Dan,

As a follow up to our recent conversation regarding an agreement for our school to use the east parking lots of Battle Point Park for overflow parking for a limited number of school events, we are submitting this letter of understanding between BIMPRD and Montessori Country School (MCS) detailing our requested use of these parking areas.

During the course of a school year (September through early June), we would request use for up to 8 parent/curriculum meetings held at the school in the evening (7-8:30 pm) for which we might need to use the parking lots at the east 7ntrance to Battle Point Park for overflow parking. These tend to occur in the fall through early spring. There are also two short events that occur during the daytime, one on a Sunday afternoon in October in the mid afternoon, and one mid-morning on
the Friday before Mother's Day in May.

We understand that BIMPRD events at Battle Point Park are a priority for these parking areas. We will also continue to work diligently with the BIMPRD to educate our parent community with regard to keeping the entrance and exit to the park clear of traffic when using the parking areas.

Meghan Kane Skotheim
Head of School
Montessori Country School

Dan Hamlin
Park Services Division Director
BI Metro Park & Recreation District

John Horsley
DISTRICT 1
Win Granlund
DISTRICT 2
Billie Eder
DISTRICT 3

Kitsap County Board of Commissioners

October 3, 1990

Dorothy King
11315 Battle Point Drive
Bainbridge Island, WA 98110

RE: "Montessori Country School"

Dear Applicant:

Your application for a Revised Unclassified Use Permit was approved by the Kitsap County Board of Commissioners at a public hearing held October 1, 1990.

If you have any questions regarding this action, please feel free to contact this office.

Sincerely,

Holly Anderson, Clerk of the Board
KITSAP COUNTY BOARD OF COMMISSIONERS

HA:kh

Enclosure

614 Division Street • Port Orchard, Washington 98366 • (206) 876-7
Washington Toll Free 1-800-872-4503
SCAN 262-7146

RESOLUTION NO. 443-1990

A RESOLUTION APPROVING REVISED UNCLASSIFIED USE PERMIT FOR MONTESSORI COUNTRY SCHOOL

WHEREAS, Dorothy King, 11315 Battle Point Drive, Bainbridge Island, Washington has initiated a request for approval of a revision to Unclassified Use Permit to construct an addition to the existing school on property described in said petition, and all legal requirements having been performed; and

WHEREAS, the Kitsap County Hearing Examiner has transmitted to the Board of County Commissioners, Kitsap County, Washington, a copy of the Kitsap County Hearing Examiner's findings of fact and recommendations and for the reasons stated therein;

NOW, THEREFORE, BE IT RESOLVED that the Board of County Commissioners does hereby adopt the findings of fact, conclusions and recommendations of the Hearing Examiner as its own (as shown on the attached material entitled Exhibit A) and does hereby approve the revision to Unclassified Use Permit.

(ASSESSORS ACCOUNT # 172502-1-017-2005

PASSED IN OPEN SESSION this 1st day of October, 1990.

KITSAP COUNTY BOARD OF COMMISSIONERS

John Horsley, Chairman

Billie Eder, Commissioner

Win Granlund, Commissioner

ATTEST:

Holly A. Anderson, Clerk of the Board

EXHIBIT "A"

KITSAP COUNTY HEARING EXAMINER

RE: APPLICATION OF DONALD AND DOROTHY KING FOR REVISED UNCLASSIFIED USE PERMIT "MONTESSORI COUNTRY SCHOOL"	)	NO. 900823 2275 FINDINGS OF FACT, CONCLUSIONS AND RECOMMENDATIONS TO THE KITSAP COUNTY BOARD OF COMMISSIONERS

INTRODUCTION

The application in this matter was made on or about June 12, 1990, by Donald and Dorothy King, for a Revised Unclassified Use Permit approval to construct an addition to the existing facility to accommodate 30 additional children for a private school on weekdays. The project is located at 10994 Aarow Point Road, east of Battle Point Park on Bainbridge Island.

BASIS FOR ACCEPTANCE

The authority of the Hearing Examiner's Office to conduct Hearings and issue recommended decisions on requests for Unclassified Use Permit approval is derived from Kitsap County Ordinance 93 (1983) and Ordinance 128 (1989).

RECORD OF HEARING

A Public Hearing on the proposal was conducted by the Hearing Examiner on August 23, 1990, in the Commissioner's Chambers of the Kitsap County Courthouse, Port Orchard, Washington.

During the Public Hearing, the following exhibits were received and entered into the record:

A. Unclassified Use Permit application

B. Environmental Checklist

C. Resolution No. 554-1979

D. Assessor's Tax Map

E. Kitsap County Hearing Examiner's Findings and Recommendations to the Kitsap County Board of Commissioners dated May 8, 1981

F. Photographs of the subject property

G. Zoning Map

H. Site Location Map

I. Site Plan

J. A letter from the applicant dated June 12, 1990

K. Memorandum dated June 25, 1990, from the Kitsap County Fire Prevention Bureau

L. A letter dated July 12, 1990, from Nicholas and Mary Romeo

M. A letter dated July 18, 1990, from the Bainbridge Island Park & Recreation District

N. Bainbridge Island Planning and Advisory Council Subcommittee Report of July 18, 1990

O. Bainbridge Island Planning Advisory Council Minutes of Meeting of July 18, 1990

P. Memorandum dated July 30, 1990, from the Department of Public Works, Engineering Division

Q. A letter from the applicant dated August 1, 1990

R. Determination of Nonsignificance signed by the Responsible Official on August 3, 1990

S. Notice of Public Hearing dated August 8, 1990

T. Memorandum dated August 15, 1990, from the Department of Public Works, Hydraulics Division

U. A letter dated August 21, 1990, from Deborah Oliver

V. Kitsap County Department of Community Development Staff Report dated August 22, 1990

W. A letter from Luanne and Thomas Croker dated August 21, 1990, received by the Department on August 23, 1990

X. Letter from the Bremerton-Kitsap County Health Department dated August 27, 1990

Oral testimony was taken at the Public Hearing as follows:

1. Janet Moore, Planning Staff
   Kitsap County Department of Community Development
   Port Orchard, Washington 98366

   Ms. Moore gave the Staff Report and background information on this application. Ms. Moore stated the applicant is seeking a revised Unclassified Use Permit to construct an addition to an existing facility of 1,800 square feet. The addition will accommodate 30 additional children for a private school on weekdays. The existing facility is approved for 34 children and each of two preschool sessions on weekdays.

   The property is zoned Rural 1 Acre. The policies relating to development of this site are stated in the Staff Report.

   The septic system has been relocated to another part of the property to allow more parking spaces on site. There is a concern regarding parking and traffic and these are being addressed with the addition of parking and through an upgrading of the road approach. The existing vegetation should remain to help buffer noise. The Staff is recommending approval, subject to conditions stated in the Staff Report.

2. Patty Christensen
   10994 Arrow Point Drive
   Bainbridge Island, Washington 98110

   Ms. Christensen stated that last year the parking situation was not good. They have moved the septic system to add more spaces and to address the parking problems. The applicant also has permission to use the Park Department facilities which are nearby for special event overflow parking. Ms. Christensen stated that they expect the addition of the elementary children not to increase the number of cars as there are many siblings in the school and car pooling is encouraged.

3. John Stack
   11030 Arrow Point Drive N.E.
   Bainbridge Island, Washington 98110

   Mr. Stack stated that he is opposed to non-residential development in a residential area. He is also concerned about how big is big enough and will there be more expansion plans for this site.

   Mr. Stack stated that there will be an impact on the water supply and sewage disposal as the needs of this school will

exceed residential requirements. He asked how the development will impact other residences in the area. Parking is also a concern and no parking signs need to be posted on the road. Mr. Stack asked whether any additional public services will be required. The school has not been a bad neighbor but he is opposed to non-residential development in residential areas.

4. Bill Zupanic
Department of Public Works
Port Orchard, Washington 98366

Mr. Zupanic stated that the Traffic Department is going to review the area as to a possibility of posting no parking signs on the right-of-way and to reassess the speed limit on the street. The Department will also review for a crosswalk over to the Park Department facility.

5. Janice Skelton
10985 Manitou Park Blvd. NE
Bainbridge Island, Washington 98110

Ms. Skelton stated that she is a parent of children in this school and is in support of the application. Schools belong in neighborhoods and this is a good location for this particular use.

Ms. Christensen communicates well with the parents and Ms. Skelton stated that issues regarding traffic and parking can be addressed directly with the parents.

6. Dorothy King
11315 Battle Point Drive
Bainbridge Island, Washington 98110

Ms. King stated that when the school was started, they had no idea there would be a need to expand due to the ever increasing number of families with young children moving to Bainbridge Island. She stated that she believes schools belong in neighborhoods. Traffic has been a problem but steps have been taken to alleviate these problems.

7. Janet Moore, Planning Staff
Kitsap County Department of Community Development
Port Orchard, Washington 98366

Ms. Moore stated that a letter from the Health Department has not been received as yet but it is her understanding that the applicant has been working with the Department on the septic system changes made over the summer.

Policies, regulations and laws applicable to the subject proposal:

A. KITSAP COUNTY ZONING ORDINANCE (No. 93)

(1) Section 6	Residential Zones
(2) Section 9	Unclassified Uses
(3) Section 10	Bulk Regulations
(4) Section 17	Off-Street Parking
(5) Section 19	Performance Regulations
(6) Section 23	Procedure

B. KITSAP COUNTY FIRE FLOW ORDINANCE (No. 96)

C. KITSAP COUNTY COMPREHENSIVE PLAN
Bainbridge Island Subarea Plan

See Exhibit "A" attached hereto and incorporated herein as though fully set forth.

FINDINGS OF FACT

1. The applicant has requested approval for a Revised Unclassified Use Permit to construct an addition to the existing facility to accommodate 30 additional children for a private school on weekdays.

2. The project is located at 10994 Arrow Point Drive, east of Battle Point Park on Bainbridge Island.

3. The property is a 2.5 acre site and is an elongated rectangle 116 feet by 980 feet. The existing facility includes th existing preschool which has a residential appearance. An outdoor playarea is located east of the structure. Parking and a drop-off area are located west of the structure. The site is well-screened by large-scale coniferous trees.

4. Pursuant to WAC 197-11-340, a Determination of Non-Significance was signed by the Responsible Official on August 3, 1990.

5. The property is currently zoned Rural One Acre and is designated as Rural One Acre on the Bainbridge Island Comprehensive Plan.

6. The Surrounding Land Use and Zoning is as follows:

North and East:	Forested, Rural 1 Acre
South:	Single-family residences, R.P. 2.5 Acre
West:	Battle Point Park, R.P. 2.5 Acre

7. The subject property will be served by on-site well, Puget Sound Power and Light, and on-site septic system.

8. Access to the site is from Arrow Point Road which consists of ingress via the southerly driveway and egress via the northerly driveway. The access and internal parking areas are surfaced with gravel. Eleven parking stalls are depicted.

   Section 17.b of the Kitsap County Zoning Ordinance requires one parking stall per three children for daycare. One stall per employee plus two stalls per classroom are required for a private school.

   The parking lot at the Battle Point Park will continue to be used by the staff, and for overflow parking for special events. The Park Department has given approval for such use.

9. The applicant has demonstrated that the proposed use will be generally compatible with existing and probable uses of surrounding properties.

10. The applicant has demonstrated a willingness and ability to comply with conditions that may be imposed.

CONCLUSIONS

1. Schools are covered by the Unclassified Use Permit section of the Zoning Ordinance and may be permitted in different types of zones, including residential zones. The standard for reviewing such applications is whether the proposed use will be compatible with existing and probable uses.

   The major time period for use of this proposed facility is weekdays with peak traffic at 9:00 a.m. and 3:00 p.m. The plan proposes to add parking spaces on site and use of an adjacent park district lot for parking.

   The proposed use, in scale and intensity, appears compatible with the existing and probable future uses of surrounding property.

2. Conditions are necessary for granting of approval of the Revised Unclassified Use Permit to ensure that the use is not or will not become incompatible with surrounding uses.

3. Approval of the Revised Unclassified Use Permit subject to conditions as outlined below, is necessary for the preservation and enjoyment of the substantial property right of the petitioner

and will not be materially detrimental to the public welfare nor to the property of other persons located in the vicinity thereof.

4. The proposed Revised Unclassified Use Permit conforms to the general purposes of the Kitsap County Comprehensive Plan and the Bainbridge Island Subarea Plan.

5. The applicant has made provision for appropriate facilities and improvements for this proposal.

RECOMMENDED DECISION

Based on the testimony presented at the Public Hearing, the documents admitted into the record, the site inspection conducted by the Examiner and the Findings and Conclusions made and entered above, it is recommended to the Board of County Commissioners that the application for Revised Unclassified Use Permit be approved, subject to the following conditions:

1. That all applicable Bremerton-Kitsap County Health Department regulations shall be adhered to prior to final approval.

2. That the applicant provide fire hydrants, fire flow and fire protection systems adequate to meet the requirements of the Kitsap County Fire Prevention Bureau in all respects.

3. That the requirements of the Department of Public Works, Engineering Division shall be met as follows:

   a) That the applicant will be required to construct approach/aprons to match the existing road surface of Arrow Point Road at both approaches with a minimum 35-foot fillet radii.

   b) These approaches shall be paved with a minimum of 2 inches compacted depth of asphalt concrete over 2 inches compacted depth crushed surfacing top course.

   c) The applicant shall apply to the Department of Public Works for a road approach permit.

4. That any site modifications such as the addition of impervious surfaces (i.e., asphalt, concrete) will require additional review by the County Public Works Department, Hydraulics Division.

5. Existing trees and shrubs shall be preserved to the greatest

extent possible, as depicted on the site plan received June 12, 1990.

6. The proposed 12-foot wide buffer along the south boundary near the proposed parking stalls shall be supplemented with coniferous trees and shrubs, if needed, to screen the site from the adjacent neighbors.

7. Approval is limited to the proposal as depicted and described in the application. Approval is not to be construed as implied approval of more extensive utilization of the site or commercial development in the vicinity.

   Specifically, the facility is approved for:

   a) Two preschool sessions per weekday for a maximum of 34 children per session; 9:00 a.m. to 11:30 a.m. and 12:30 p.m. to 3:30 p.m.; and

   b) A private school for a maximum of 30 students (Kindergarten through third grade) with weekday hours of 9:00 a.m. to 3:00 p.m.

8. The Washington State requirements for a private school shall be met.

DATED this 12th day of September, 1990.

M. Karlynn Haberly, HEARING EXAMINER

TRANSMITTED THIS 14th day of September, 1990, by mail, to the following:

Dorothy & Donald King, 11315 Battle Point Dr., Bainbridge Island, WA 98110
Patricia Christensen, Director, Montessori Country School, 10994 Arrow Point Dr., Bainbridge Island, WA 98110
Janice Skelton, 10985 Manitou Park Blvd. NE, Bainbridge Island, WA 98110
John Stack, 11030 Arrow Point Dr. NE, Bainbridge Island, WA 98110
Luanne Croker, 10158 Arrow Pt. Dr. NE, Bainbridge Island, WA 98110
Deborah Oliver, 10491 Arrow Pt. Dr. NE, Bainbridge Island, WA 98110
Bremerton-Kitsap County Health Department

Kitsap County Department of Public Works - Engineering Division
Kitsap County Department of Public Works - Hydraulics Division
Kitsap County Department of Community Development

NOTICE

Pursuant to Kitsap County Ordinance No. 128 (1989), request for reconsideration of the Examiner's decision or recommendation in this matter must be filed in writing on or before September 21, 1990. The filing of a request for reconsideration does not affect or stay the time for which a notice of appeal shall be filed.

Pursuant to Kitsap County Ordinance 128 (1989) and the Land Use Hearing Examiner Rules of Procedure, Sections 5.2., 5.3 and 5.4, a request for APPEAL, to the Board of County Commissioners of the Examiner's decision or recommendation in this matter must be filed in writing with the Clerk of the Board of County Commissioners on or before Sept. 28, 1990.

Prior to the filing of an Appeal, the appellant shall pay the sum of THIRTY AND NO/100 DOLLARS ($30.00) to the Department of Community Development per Section 23.e.(2) and (3) of the Kitsap County Zoning Ordinance No. 93-1983.

MKH/lao

RESTRICTED AREA
Vegetation Protection Zone

NO PERSON, CORPORATION, OR OTHER LEGAL ENTITY SHALL CUT, TRIM, REMOVE, CLEAR OR DAMAGE ANY VEGETATION OR TREES WITHIN THIS AREA WITHOUT OBTAINING A CLEARING PERMIT FROM THE CITY PLANNING DEPARTMENT.

Jane Rasely

From: Kelly Tayara
Sent: Wednesday, August 10, 2016 6:26 PM
To: 'betty hung'
Subject: FW: PRR Montessori Country School PLN 17677 SPR/CUP

Hello Ms. Hung,

I spoke with Steve Brown, the Health District representative, today. He offered to respond to those questions that have to do with septic / drainfield / well, as the City relies on the Kitsap Public Health District to review those aspects of a proposal.

I will look into the possibility there is a wetland on the adjacent property, and whether there are implications (e.g. buffer requirements).

Thank you for taking the time to comment on the proposal.

Kelly

CITY OF BAINBRIDGE ISLAND
KELLY TAYARA
Planner
www.bainbridgewa.gov
facebook.com/citybainbridgeisland/
206.780.3787 (office) 206.780.3750 (Planning Department)

From: betty hung [mailto:bwhung@hotmail.com]
Sent: Tuesday, August 09, 2016 6:31 PM
To: Kelly Tayara <ktayara@bainbridgewa.gov>
Subject: Re: PRR Montessori Country School PLN 17677 SPR/CUP

Thanks!

Sent from my iPhone

On Aug 9, 2016, at 4:29 PM, Kelly Tayara <ktayara@bainbridgewa.gov> wrote:

Hello Ms. Hung,

Thank you for your comments. I will be meeting with the Health District representative tomorrow to review the first three items, and hope to be able to provide a response to your questions within a few days.

Thank you,
Kelly

<image001.jpg>
KELLY TAYARA
Planner
www.bainbridgewa.gov
facebook.com/citybainbridgeisland/
206.780.3787 (office) 206.780.3750 (Planning Department)

From: betty hung [mailto:bwhung@hotmail.com]
Sent: Monday, August 08, 2016 10:27 AM
To: Kelly Tayara <ktayara@bainbridgewa.gov>
Subject: Re: PRR Montessori Country School PLN 17677 SPR/CUP

Kelly,

Thank you for sending this.

We live at 10458 Arrow Point Drive which is directly adjacent to and downhill from the Montessori School so we want to make sure that their well, septic and water runoff systems are all designed to adequately address their needs without causing any negative environmental or other impact on our property, systems and shoreline. In that regard, I have a few additional questions/comments for your consideration.

1) In the septic plan documents, I thought I saw a plan to abandon the current septic system and crush it and allow it to decompose. What would be the expected impact of that, in addition to adding a very large new septic system, all uphill from our well, our pond and Manzanita Bay?

2) Will the new septic system have sufficient capacity to manage the load from the additional staff/students? Is it a commercial system that will also process chemicals such as cleaning supplies? What is the expected impact on our well and our pond downhill as well as our septic field which is uphill to the south (I think) of their planned field?

3) From the plans, it appears that they plan to drill new wells to support the expansion. What's the expected impact of those new wells on the aquifer levels?

4) For the water runoff from the additional buildings and the parking lots, are the drainage fields sufficient for the rainy season here or are they based on average annual rainfall? The Montessori School originally approached us to see if they could drain their runoff into our pond and we were concerned about the volume

of water and also the effluent quality and environmental impact on the plants and animals in and around the pond, as well as the fact that the pond overflow drains directly into Manzanita Bay.

5) In the woods just downhill from the Montessori School, (I think it's on their neighbor to the south's property), there appears to be a small wetlands area that should also be considered.

6) In addition to all the animals they noted, we also have coyotes resident in our woods.

I'm not sure how the process works so feel free to let me know if I need to do something differently to raise these questions or if the answers are readily available somewhere else that I should be looking.

Appreciate your time and help on this.

Betty

From: Kelly Tayara <ktayara@bainbridgewa.gov>
Sent: Monday, August 1, 2016 6:31 PM
To: betty hung
Subject: RE: PRR Montessori Country School PLN 17677 SPR/CUP

Hello Ms. Hung,
I have not drafted a recommendation or conditions. Prior to doing so, I consider public and agency comment. I have attached a copy of the environmental checklist with my response to the applicant's assertions; this is the checklist that is sent to the SEPA agencies for review. Please do not hesitate to contact me if you have questions or comments, and please be assured that comments will be considered throughout the review period (i.e. not just during the formal comment period).

Thank you,

<image001.jpg>
KELLY TAYARA
Planner
www.bainbridgewa.gov

<image003.jpg>

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www.bainbridgewa.gov

The Bainbridge Island Police Department (BIPD) invites you to celebrate the 33rd annual "National Night Out" on, August 2, from 5:00 to 8:00 p.m. at City Hall's ...

facebook.com/citybainbridgeisland/
206.780.3787 (office) 206.780.3750 (Planning Department)

From: betty hung [mailto:bwhung@hotmail.com]
Sent: Friday, July 29, 2016 1:09 PM
To: Kelly Tayara <ktayara@bainbridgewa.gov>
Subject: Re: PRR Montessori Country School PLN 17677 SPR/CUP

Kelly,

Left you a voicemail. Is there a list of conditions being considered to mitigate the environmental impacts of this project and, if so, can you please send to me? Thanks.

Betty

From: Kelly Tayara <ktayara@bainbridgewa.gov>
Sent: Friday, July 22, 2016 10:08 AM
To: bwhung@hotmail.com
Cc: PCD
Subject: FW: PRR Montessori Country School PLN 17677 SPR/CUP

Jane Rasely

From: Tom McDonnell <tmcdonnell3@msn.com>
Sent: Friday, July 29, 2016 11:29 AM
To: Kelly Tayara
Subject: SEPA Comments - Montessori Country School PLN 17677SPR/CUP
Attachments: SEPA Comments - McDonnell 07.29.16.pdf

Kelly - attached are our formal comments in accordance with your requirement to submit for formal consideration under SEPA environmental review on the above referenced project. Please confirm you are in receipt and that we have complied with your deadline as outlined in your July 15, 2016 communication.

Thank you,

Tom and Denise McDonnell
10550 NE Arrowpoint Drive
Bainbridge Island, WA 98110
206-818-6322
Mailing Address: 51C N Chandler Court, Port Ludlow, WA 98365

July 29, 2016

Kelly Tayara
Department of Planning & Community Development
280 Madison Avenue North
Bainbridge Island, WA 98110
ktayara@bainbridgewa.gov

Subject: SEPA Comment Period
Project: Montessori Country School PLN 17677SPR/CUP

Dear Kelly,

Below is my submission and formal comments for SEPA environmental review:

There are two primary concerns I would like to address:

1) **Environmental noise impact due to 76% increase in student and staff population. Reference:** WAC 173-60-040 and WAC 173-60-030

Concern: Our residence is directly adjacent to the subject location of which in design includes a virtual office approximately 150 feet from the SW corner of the children's play area. Between the hours of 7 a.m. and 5:00 p.m., Monday thru Friday, and on an-going basis, conference calls and clients calls will be routinely in play and noise levels could potentially impact the quality and effectiveness of my conversations which in turn can impact our income.

Possible Solution:

A) Conduct sound level measurement test WAC 173-58 5-18-94 - Washington
B) Natural landscaping (or natural looking landscaping), designed beyond the planned conifers which in themselves are categorically not known sound barriers. An appended landscaping design and implementation to buffer noise or provide as noise barriers. Examples include sound attenuation barriers strategically planted with attributes that include:
   - Sound absorption: Experts say the best species for this have many branches and thick, fleshy leaves with thin petioles (leaf stem). Although these broadleaf species lose their effectiveness in the winter when deciduous they do leaf out for maximum advantage during the months when windows are open and you're spending time outdoors.
   - Sound deflection and reflection: attractive and effective partitions that may serve as a fence, but also double as a sound barrier.
   - Sound refraction: the most powerful tool is lawn.
   - White noise: The most widely used method are fountains however trees with pine needles, quaking aspens or bamboo or other trees that attracts birds and wildlife.

2) **Protection of ground water and other critical aquifer areas as well as storm water run-off pollution.** Reference: Washington State Growth Management Act GMA, Chapter 36.70A Revised Code of Washington and others.

Concern: With the increase in in student and staff population there is an increased risk that groundwater and aquifers may become vulnerable to contamination and or depletion, effecting both water supply and quality of drinking water.

Possible Solution: Comprehensive examination and plan of wellhead protection zones where contamination would result in polluting the water supply. This plan can include:

- Identification where groundwater resources are located
- Analyze the susceptibility of the natural setting where ground water occurs
- On-going inventory of existing or potential sources of groundwater contamination including an initial benchmark as is and then routine monitoring.
- Classification of the relative vulnerability of ground water to contamination events
- Designation of areas that are most at risk to contamination events.
- Protection with a plan that reflects the types of activities and conditions that can pose contamination risks.

Thank you for your consideration.

Tom and Denise McDonnell
10550 NE Arrowpoint Drive
Bainbridge Island, WA 98110
Mailing Address: 51C N Chandler Court, Port Ludlow, WA 98365
206-818-6322
tmcdonnell3@msn.com