Mercer Island Parking Expansion Concept Study

Prepared for
Sound Transit

November 25, 2014

Huitt-Zollars
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Table of Contents

Overview

The intent of this study is to identify preferred parking expansion alternatives at the existing Mercer Island Community & Event Center (MICEC), and to inform Sound Transit as they prepare to administer a design and construction effort for this project.

Sound Transit and Huitt-Zollars provided eight parking expansion concepts to the City of Mercer Island on September 24, 2014 and requested guidance on preferred alternatives. The City and Sound Transit met on October 2 and on October 22 to identify the preferred alternatives. This study represents the two preferred alternatives that have been modeled on the following guidance principles:

- Provide separate and distinct entrances for Transit parking and MICEC parking
- Provide uninterrupted vehicle drop off at the front of the MICEC
- Minimize disruption to the MICEC during construction and once the parking facility is operational

The two preferred parking alternatives are summarized in the table below:

Alternative	Parking Type	Transit Stall #	MICEC Stall #	Total Stall #
1	Structured Parking	229	213	442
2	Surface Parking	203*	224**	427

*Includes 6 motorcycle/scooter stalls, **Includes 3 motorcycle/scooter stalls

Included in this overview section are narratives and drawing concepts for each of the alternatives.

This study is supported further by a Technical Summary Memorandum and Design-Build Delivery Schedule.

Vicinity Map

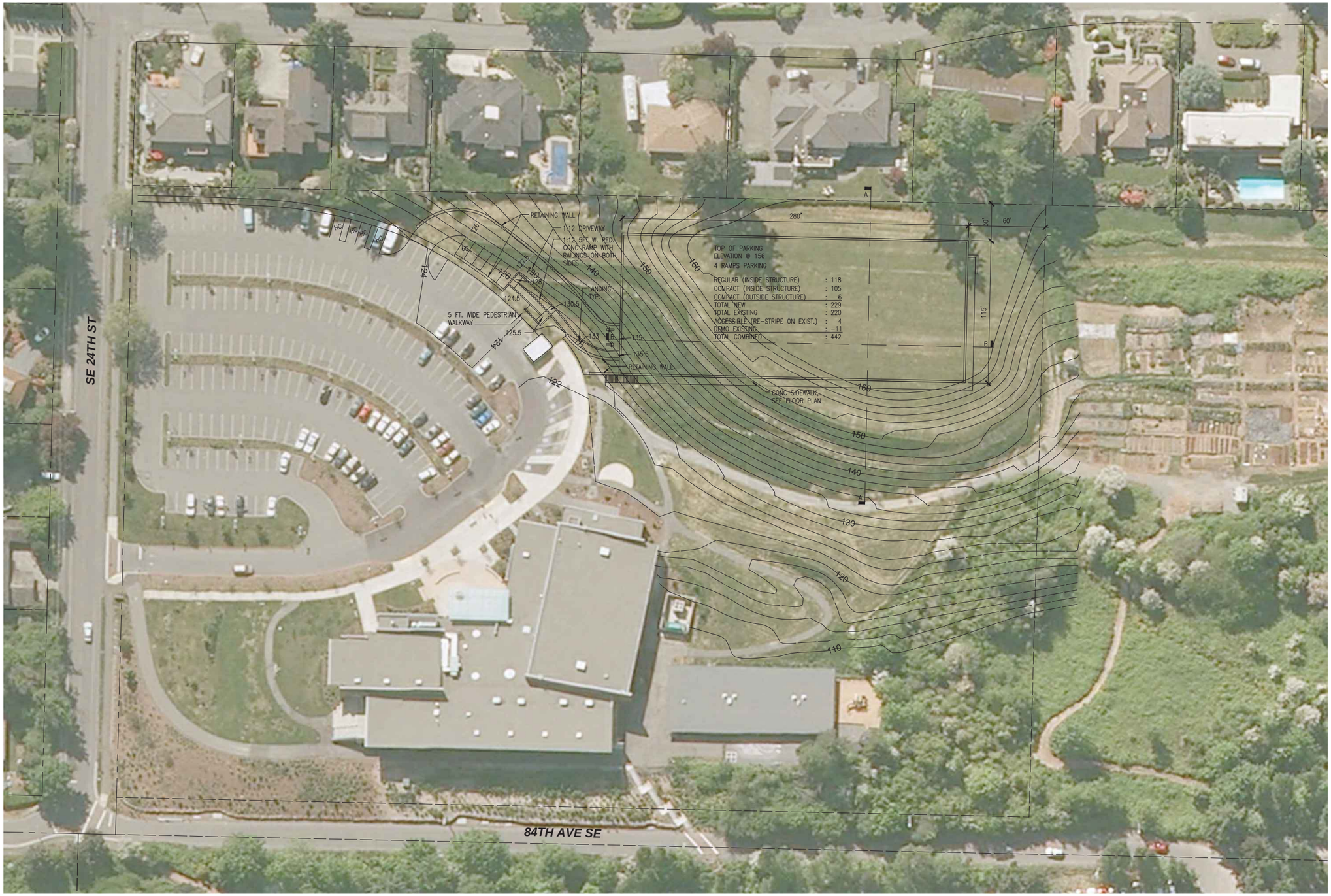
NORTH (NTS)

Alternative 1 Narrative (Structured Parking)

The new three level open Parking Structure in Alternative 1 will be located at the existing hill at the northwest corner of the site. The location will have minimum disruption to the existing surface parking lot and the MICEC. Access to the new Parking Structure will be from a new driveway that connects the lower existing parking lot at the south side to a higher grade of the new Parking Structure. Entrance to the new driveway is placed as far as possible from the existing drop off and accessible parking stalls to minimize impact to the existing parking for the MICEC. The van accessible parking spaces, which often require higher vertical clearance, are located outside the Parking Structure to keep the 10 ft floor to floor height for all levels in the new structure. The top of the parking surface will be at elevation 156 ft, which is approximately 4 ft below the top of the current existing hill. The top of the staircase and elevator towers will be at elevation 166 ft. Because the Parking Structure is multi-level, it will make the smallest footprint on the site, leaving a wider open space between the Parking Structure and the existing MICEC. New pedestrian walkway is provided to connect the new Parking Structure to SE 24th Street. We propose to use similar exterior materials used on the existing MICEC building for the new Parking Structure as shown on the attached exterior elevations drawings. Reference the Structural Narrative for additional comments about the impact of the Parking Structure to the existing condition. Number of parking stalls for Alternative 1 is approximately 229. There will be 6 existing parking stalls demolished for the new driveway, and 5 existing parking stalls converted to 4 accessible parking stalls. The total combined parking spaces between the new Parking Structure and existing MICEC parking is 442.

Alternative 1 Drawings (Structured Parking)

- 3 Drawings at 11x17



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No.	DATE	DSN	CHK	APP	REVISION

DESIGNED BY: Lukas Shu
DRAWN BY: Lukas Shu
CHECKED BY: Lukas Shu
APPROVED BY: Dennis Erwood

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LINE IS 1" AT FULL SCALE

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SOUNDTRANSIT

SCALE: NOT TO SCALE
FILENAME: A-101-STRUCTURE
CONTRACT No.:
DATE: 11/03/2014

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
ALTERNATIVE 1

SITE PLAN

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LOCATION ID:
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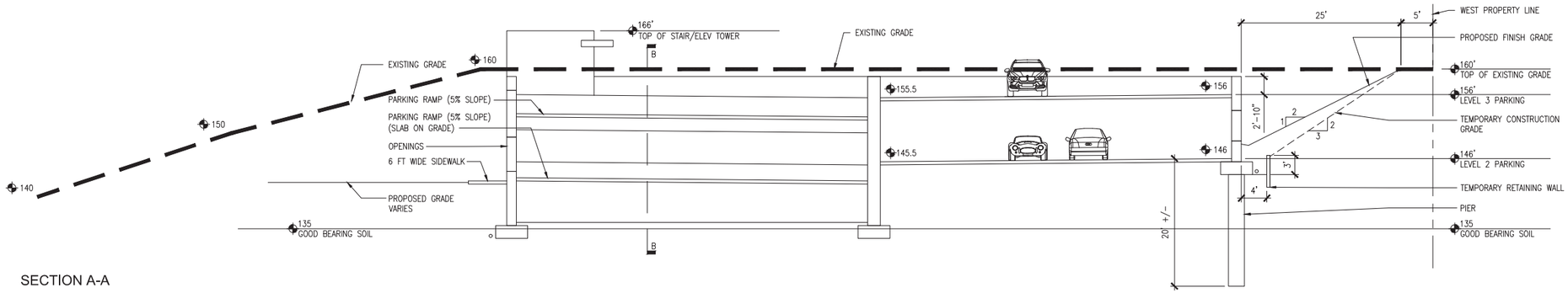
REV: 0



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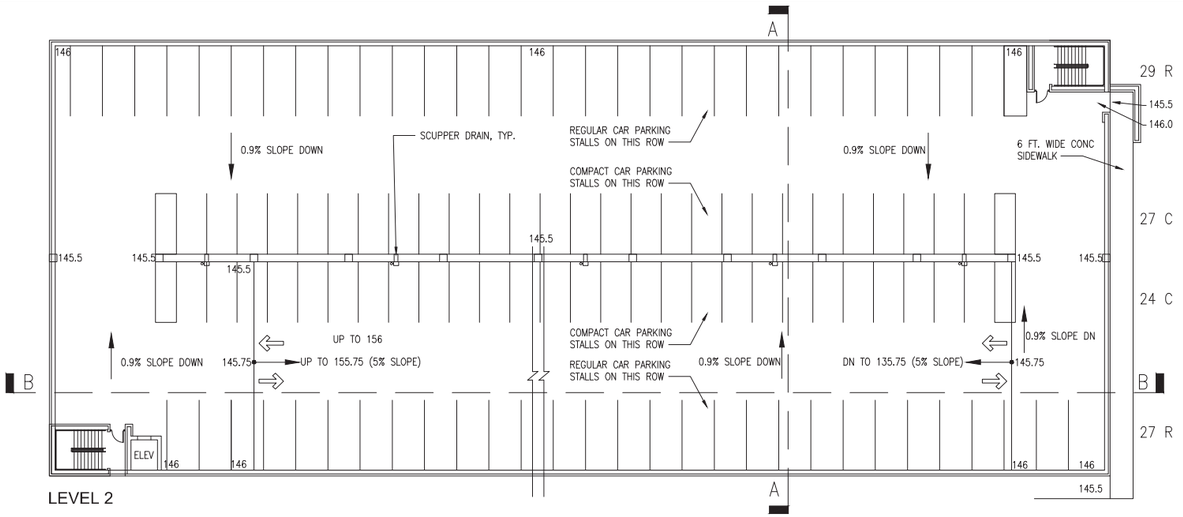

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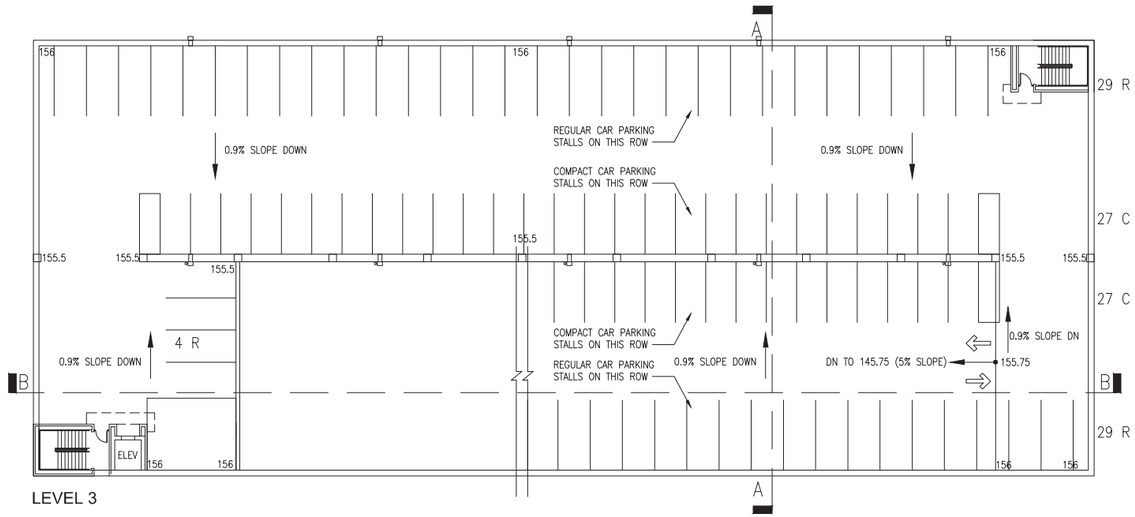

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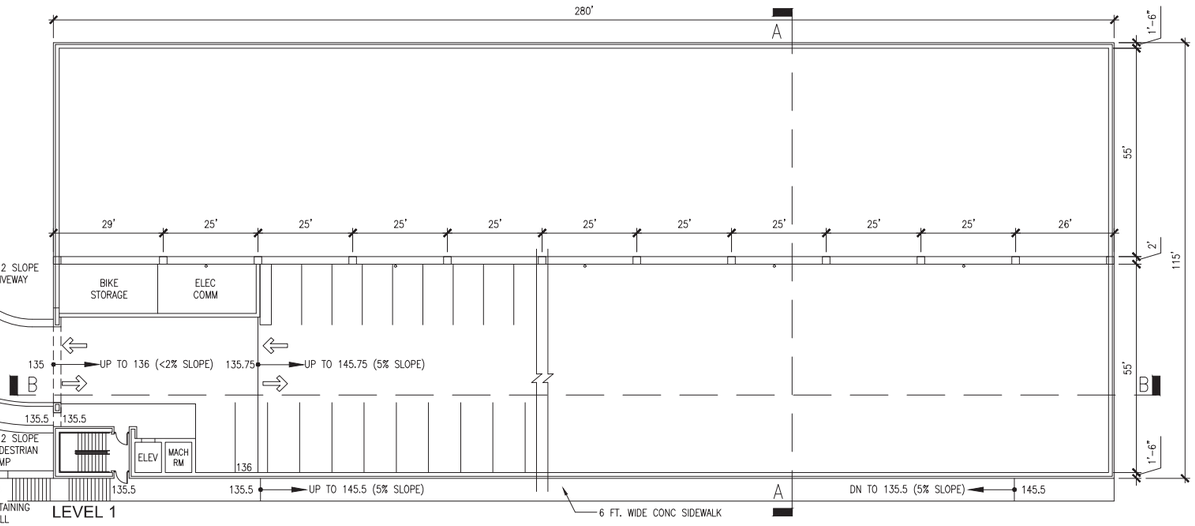

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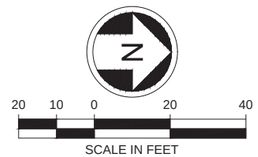

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SOUNDTRANSIT

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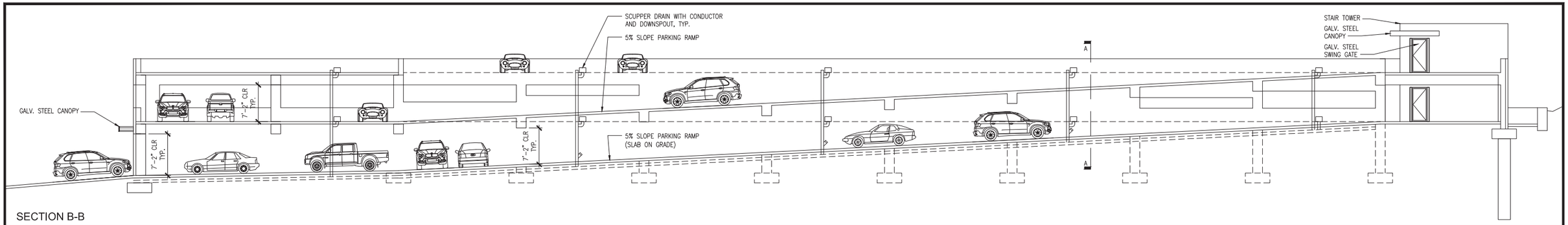
DATE: 11/03/2014

SCALE: NOT TO SCALE
FILENAME: A-101-STRUCTURE
CONTRACT No.:

LINK LIGHT RAIL PROJECT
EAST CORRIDOR
ALTERNATIVE 1

FLOOR PLANS AND BUILDING SECTION

DRAWING No.: PXX-AP101
LOCATION ID:
SHEET No.: 8
REV: 0



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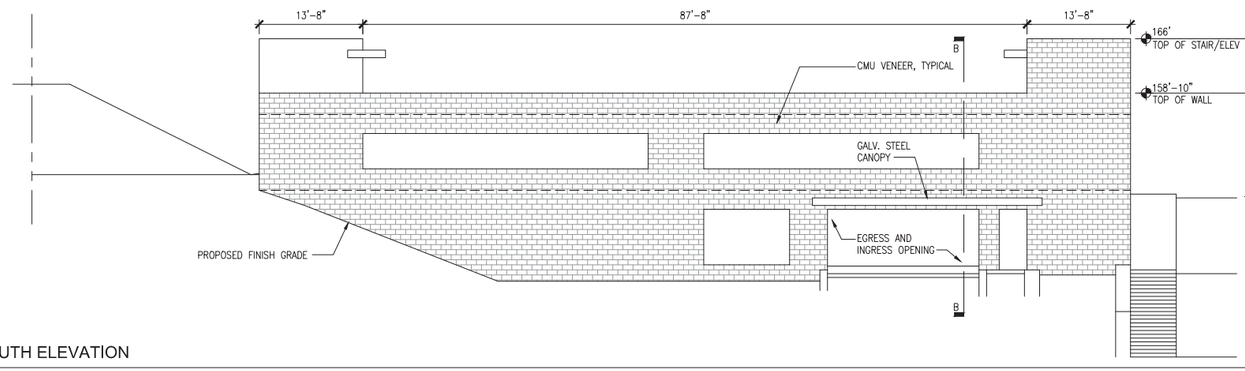

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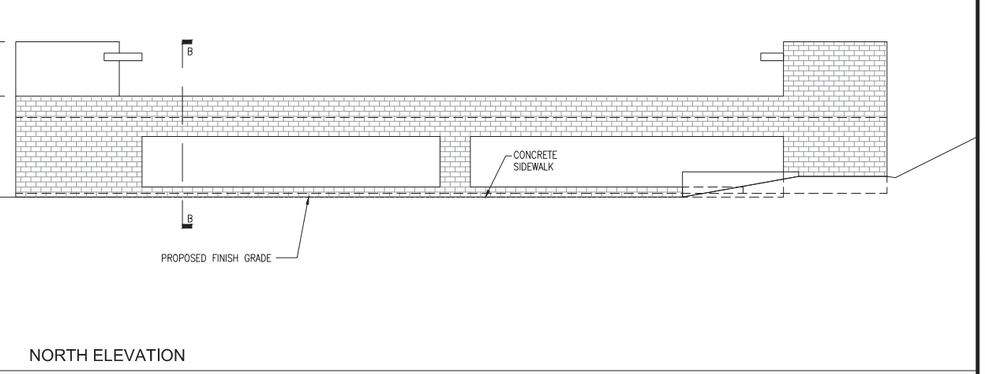

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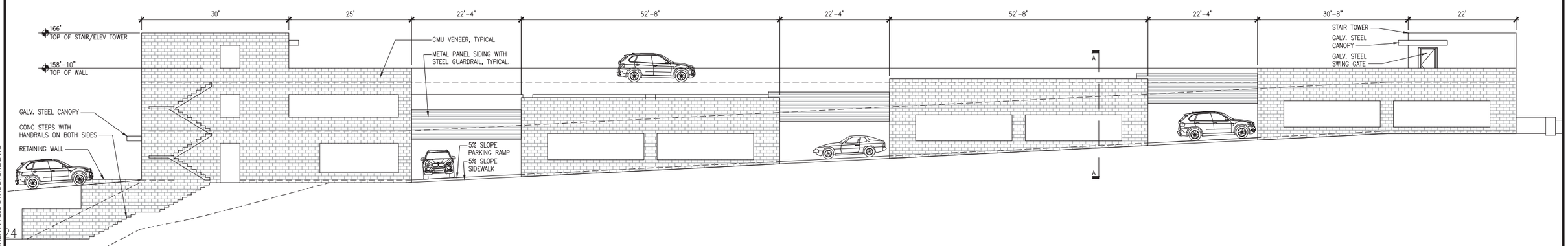

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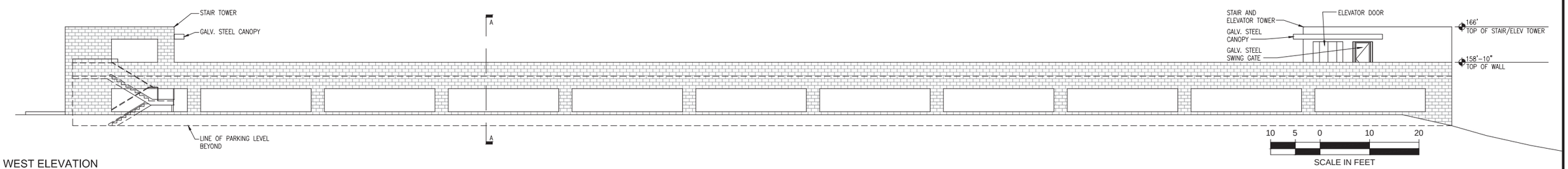

WEST ELEVATION

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LINK LIGHT RAIL PROJECT
EAST CORRIDOR
ALTERNATIVE 1

EXTERIOR ELEVATIONS AND BUILDING SECTION

DRAWING No.: PXX-AE101
LOCATION ID:
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Alternative 2 Narrative (Surface Parking)

Alternative 2 is a surface parking layout that generally maximizes parking stalls in the area of the existing hill. This alternative provides separate and distinct entrances for Transit parking and MICEC parking, including separate entrances from SE 24th Street. The existing parking lot will be separated into two lots, the west lot will be designated for Transit parking and the east lot will be designated for MICEC parking. The Transit parking area will be made up of the existing west lot circulating into the new west aisle parking area. The MICEC parking area will be made up of the existing east lot circulating into the new east aisles parking area. Parking separation is achieved by placement of removable bollards in the existing parking lot and in the new parking lot. Bollards may be removed to provide full circulation between parking lots. Access locations to the new parking lot are positioned to not interrupt the existing drop off area. Minor reconfiguration of the existing parking lot will be needed to provide flow through vehicle circulation for both Transit parking and MICEC parking.

The new parking configuration allows for two way traffic aisles and 90 degree parking on each side with the exception of few parallel parking stalls. Grades will generally not exceed 5% slope in areas of parking. A drive ramp (approximately 12%) is provided between the west parking aisle and the vehicle access to accommodate the elevation difference.

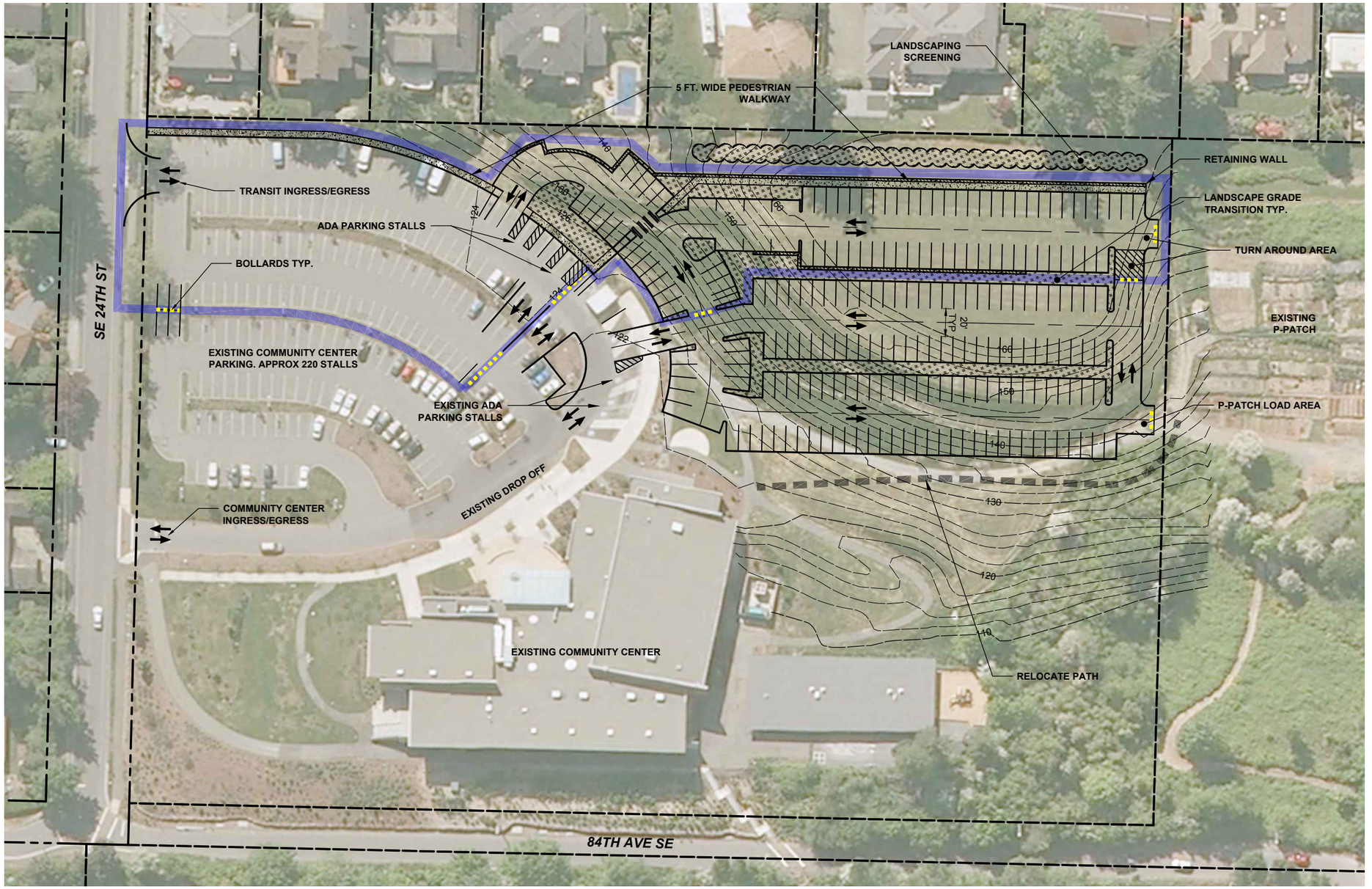
A pedestrian walkway will be provided from the new parking lot and connect to SE 24th Street. The existing path that leads to the p-patch will be relocated around the parking lot. A p-patch load area is included in the new parking lot to provide opportunities for the loading and unloading of materials to serve the p-patch. A combination of cut retaining wall and catch grading (2H: 1V) will likely be needed at the west side of the parking lot. Landscape screening may be used to screen the parking lot from the adjacent residences to the west. Catch grading appears to be feasible along the north and east side of the new parking lot.

Alternative 2 will yield approximately 203 Transit parking stalls and 224 MICEC parking stalls. The total combined parking spaces between the new surface parking and existing MICEC parking is 427 (including motorcycle/scooter parking).

The Huitt-Zollars team also looked at providing some compact width stalls to increase the parking stall count. This Alternative 2 (Compact) will yield approximately 207 Transit parking stalls and 228 MICEC parking stalls. The total combined parking spaces between the new surface parking and existing MICEC parking is 435 (including motorcycle/scooter parking). The Alternative 2 (Compact) layout is included as the last page of the Alternative 2 Drawings.

Alternative 2 Drawings (Surface Parking)

- 4 Drawings at 11x17



ALL PARKING SPACES ARE STANDARD SIZE 8.5' WIDE X 18.5' LONG

PARKING LOT INFORMATION

PARKING AREA TYPE	PARKING STALLS (CAR)	PARKING STALLS (MOTORCYCLE)	TOTAL
TRANSIT	197**	6	203
COMMUNITY CENTER	221**	3	224

**INCLUDES 4 ADA STALLS

TRANSIT PARKING DESIGNATED. (REMAINDER OF PARKING IS FOR THE EXISTING COMMUNITY CENTER)

N

40 20 0 40 80

SCALE IN FEET

DRAFT

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APPROVED BY:

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SOUNDTRANSIT

SCALE: 1"=40'
FILENAME:
CONTRACT No.: RTA / LR XXXX-XX
DATE: 10/28/14

MERCER ISLAND PARKING EXPANSION
RTA/AE 0206-13
ALTERNATIVE 2

GENERAL SITE PLAN

DRAWING No.:
LOCATION ID:
SHEET No.: #
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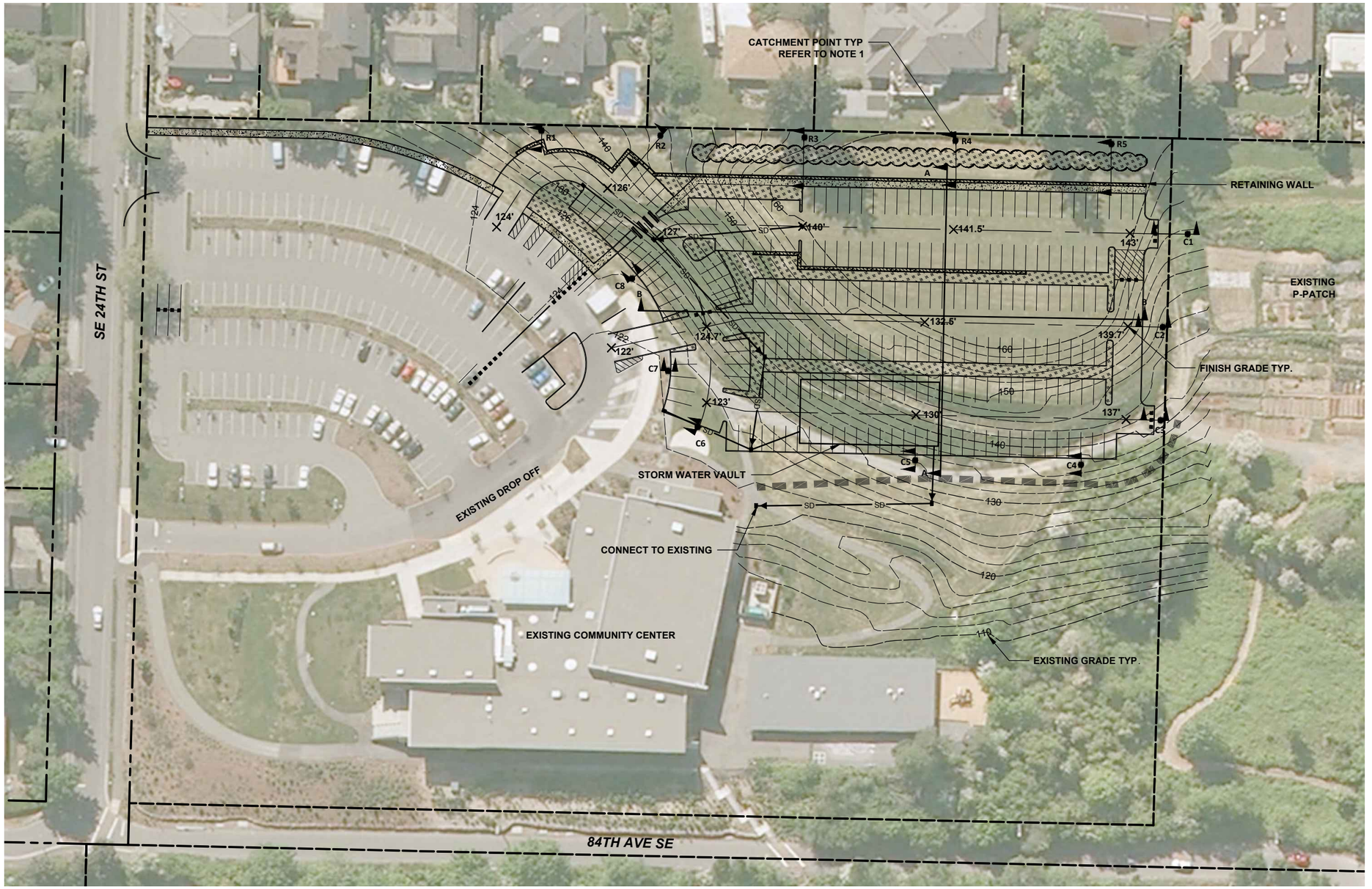

NOTES:

1.

APPROX CATCHMENT POINT	APPROX.WALL HEIGHT
R1	7.5' W/ 2:1 CATCH
R2	8' W/ 2:1 CATCH
R3	6' W/ 2:1 CATCH
R4	6' W/ 2:1 CATCH
R5	3' W/ 2:1 CATCH
C1	N/A 2:1 CATCH
C2	N/A 2:1 CATCH
C3	N/A 2:1 CATCH
C4	N/A 2:1 CATCH
C5	N/A 2:1 CATCH
C6	N/A 2:1 CATCH
C7	N/A 2:1 CATCH
C8	N/A 2:1 CATCH

LEGEND

- NEW CATCH BASIN
- 137' PROPOSED GRADE
- SD NEW STORM WATER PIPE

N

40 20 0 40 80

SCALE IN FEET

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SOUNDTRANSIT

SCALE: 1"=40'
FILENAME:
CONTRACT No.: RTA / LR XXXX-XX
DATE: 10/15/14

MERCER ISLAND PARKING EXPANSION
RTA/AE 0206-13
ALTERNATIVE 2

GRADING AND DRAINAGE PLAN

DRAWING No.:
LOCATION ID:
SHEET No.: REV: #

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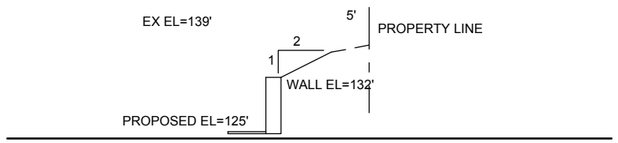

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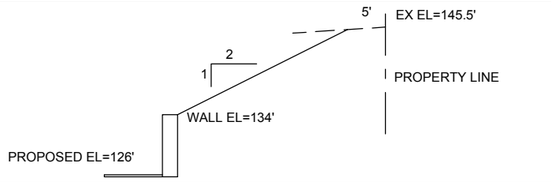

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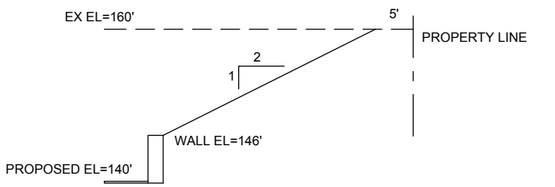

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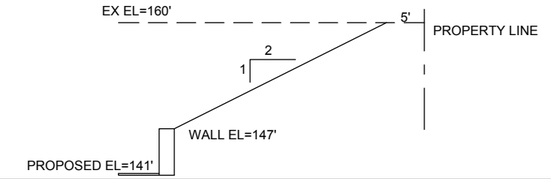

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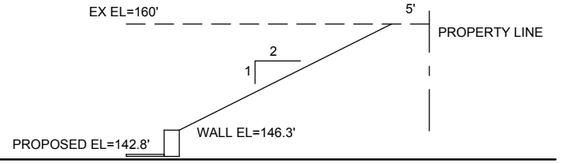

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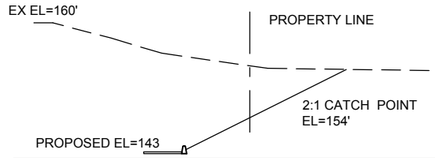

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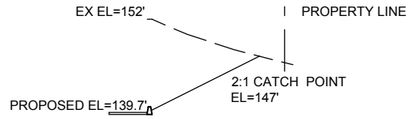

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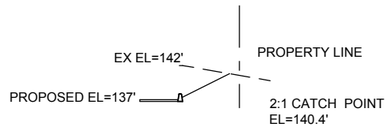

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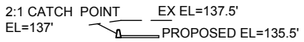

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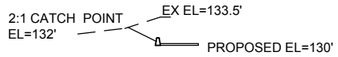

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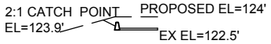

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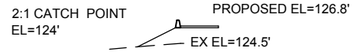

C8

LEGEND

APPROX. EXISTING GRADE

APPROX. PROPOSED GRADE

10 5 0 10 20

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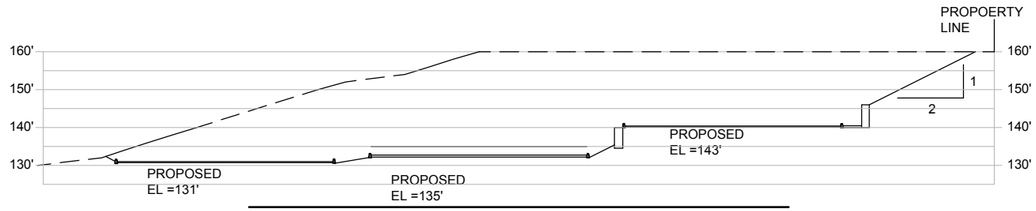

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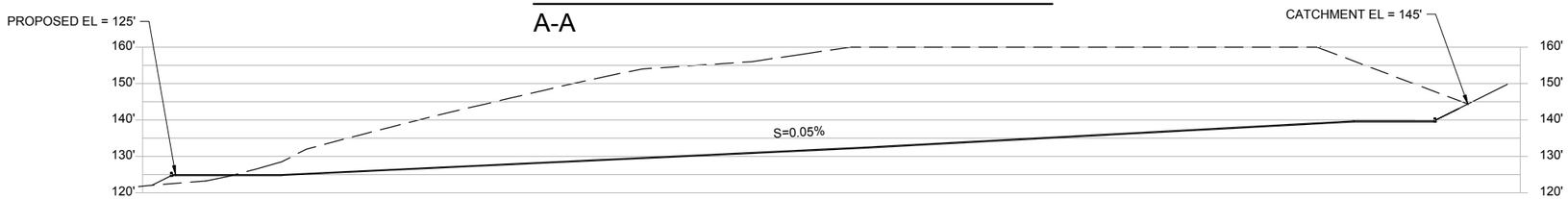

B-B

20 10 0 20 40

SCALE IN FEET

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SUBMITTED BY: | DATE: | APPROVED BY:

LINE IS 1" AT FULL SCALE

SOUNDTRANSIT

DATE:

SCALE: 1"=10'/20'

FILENAME:

CONTRACT No.: RTA / LR XXXX-XX

DATE: 10/15/14

MERCER ISLAND PARKING EXPANSION
RTA/AE 0206-13
ALTERNATIVE 2
ELEVATIONS AND SECTIONS PLAN

DRAWING No.:

LOCATION ID:

SHEET No.: REV: #

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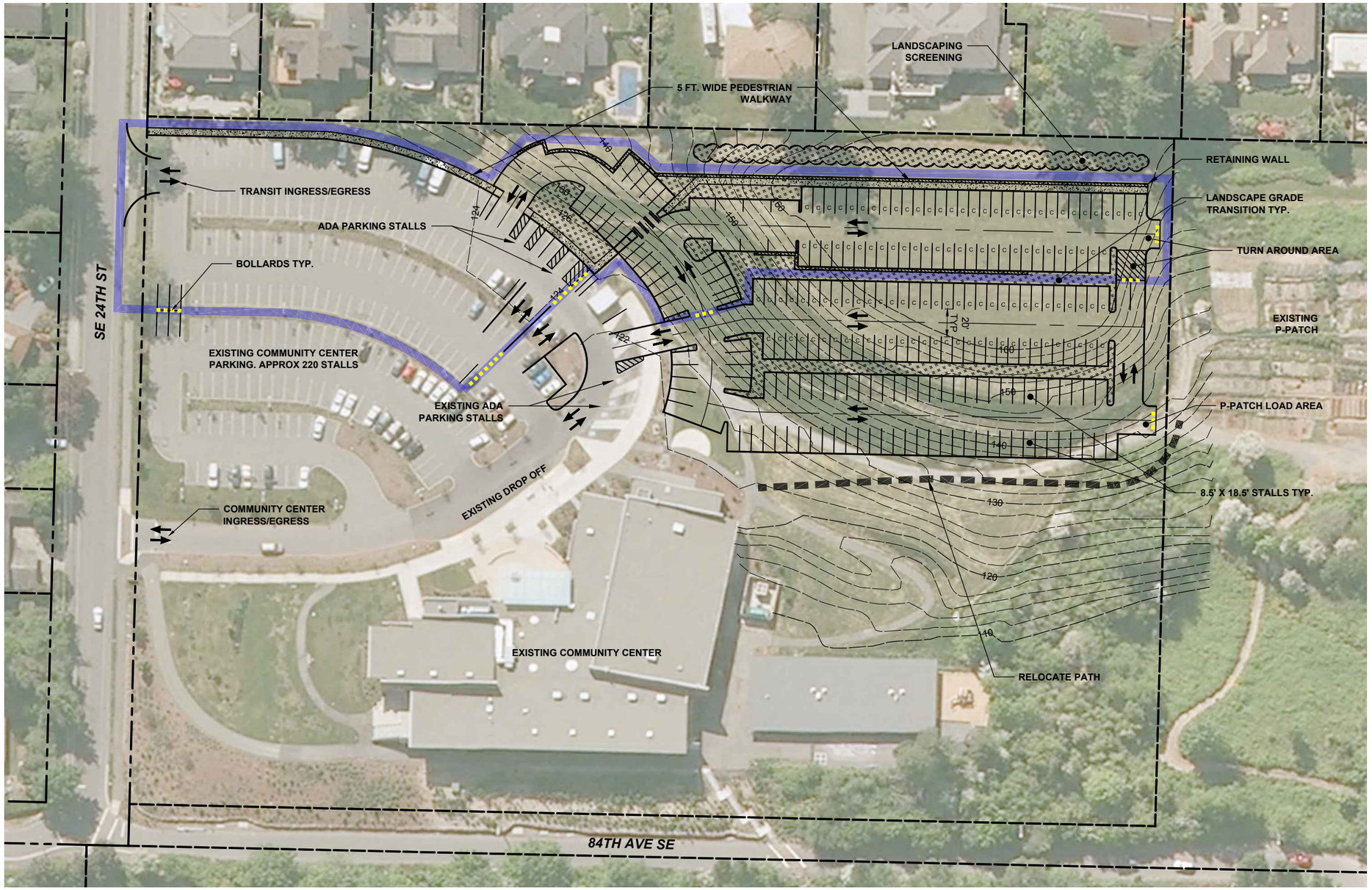

PARKING LOT INFORMATION

PARKING AREA TYPE	PARKING STALLS (CAR)	PARKING STALLS (MOTORCYCLE)	TOTAL
TRANSIT	201**	6	207
COMMUNITY CENTER	225**	3	228

**INCLUDES 4 ADA STALLS

TRANSIT PARKING DESIGNATED. (REMAINDER OF PARKING IS FOR THE EXISTING COMMUNITY CENTER)

NOTE: 'C' INDICATES PARKING STALLS WITH DIMENSIONS 8' X 18.5'

N

40 20 0 40 80

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SOUNDTRANSIT

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MERCER ISLAND PARKING EXPANSION
RTA/AE 0206-13
ALTERNATIVE 2

GENERAL SITE PLAN
COMPACT STALL OPTION

DRAWING No.:
LOCATION ID:
SHEET No.: REV: #

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Technical Summary Memorandum

See individual sections below.

Survey, Easements and Right-of-Way

1. Existing grade contours shown are based on 100% CD drawings from the MICEC project with the exception of the 162’ and 164’ contours at the top of the hill. It was indicated during discussion with the City of Mercer Island that this mound (approximately 4’) at the top of the hill was shaved down at the request of adjacent neighbors. Parking layouts will likely need to be modified once actual topographic information is obtained.
2. Property Description:
   "THE SOUTH 768.32 FEET OF THE EAST 524 FEET OF GOVERNMENT LOT 1, SECTION 1, TOWNSHIP 24 N, RANGE 4 E, W.M.; EXCEPT THE SOUTH 30 FEET THEREOF (SE 24TH ST); EXCEPT THE EAST 30 FEET THEREOF (VACATED 84TH AVE SE)."
   The property is bounded by SE 24th St on the south, by vacated 84th Ave SE on the east, by Luther Burbank Park on the north, and by Block 18, Plat of Mercer Park, and Plat of Mercer Beach Park on the west.
   There appears to be no issues to calculate and field locate the property lines. According to survey records, there are enough monuments and data to locate the boundary. (Note: This assumption is made without a current title report or field inspection.)
3. Easements:
   According to Warranty Deed (Rec. No. 20030717001793) there appear to be two easements affecting the property:
   a. Rec. No. 4655713 for Sewer Line on the westerly portion of the property (no description available on-line) Note: Mercer Island GIS shows a sewer line in the south half of the property along the westerly property line (from SE 24th St); there is also an approximately 100 feet sewer stub at the northerly portion along the westerly line (coming for the north).
   b. Rec. No. 6348106 for Air Vent Line with all Connections, Manholes and Appurtenances at the westerly portion within a strip of 10 feet in width. Note: exact location not identified (no description available on-line).

   Note: Full easement descriptions and other easements not listed above might be contained in a Title Report. Further investigation of the Title Report and other record documents may identify constraints that could impact the parking alternatives.

Also the GIS image shows sewer, storm and water lines and structures at the easterly and northerly portion; and a path leading from the existing parking lot to the northerly property line and to the Luther Burbank Park.

Stormwater Quality and Quantity

1. Existing Drainage Conditions

   The proposed parking area, in both alternatives, currently drains to an 8-inch on-site storm drain system. This system drains to the east, where it discharges into a 12-inch CMI storm drain flowing north along 84th Avenue SE. This system eventually discharges to a small stream that flows into Lake Washington near Calkins Point. This stream is identified as "potential fish use" in the *Inventoried Watercourse And/or Streams on Mercer Island*.

2. Assumptions
   a. Jurisdiction is City of Mercer Island
   b. Code Requirements: City has adopted DOE Stormwater Manual for Western Washington: flow control and basic water quality treatment
   c. Site drains directly to Lake Washington via open ditches and buried storm drain pipes
      i. Flow control assumed to be needed
   d. Site area to be developed not feasible for infiltration per City LID feasibility mapping; and not feasible for dispersion based on site conditions (LID does not appear to be feasible).

3. Conceptual Storm Water Solution:

   Flow control and water quality will be provided by a combined underground wet vault/ flow control vault. This solution appears most compatible with available land and site topography. Preliminary sizing presented below is based on modeling using the Western Washington Hydrology Model, Version 4, with site areas estimated from the attached drawings for Alternative 1 and 2. The sizing below is based on flow duration control modeling. If it is determined that peak matching flow control modeling is acceptable then the size of the flow control facility will likely be reduced.

   Table 1 summarizes conceptual vault sizing for the alternatives.

Table 1 Storm Water Vault Design Summary

Alternative	Impervious Area, acres	Required Water Quality Volume, CF	Required Flow Control Volume, CF	Vault Dimensions, FT (depth includes 1' of freeboard)		
				Length	Width	Depth
1	0.87	1,700	18,000	112	36	6
2	1.8	3,800	40,000	160	56	6

Architectural and Landscaping

Alternative 1 - Architectural and Landscaping

1. Assumptions
    a. New structure's height shall be generally below the existing grades as to not block views from the houses to the West. If elevator and/or stair tower is included in the project, then there may be partial view impacts that are at an elevation above the existing grade.
    b. An Elevator is shown in the drawings and described in the narratives. Elevators are common elements for parking garages but do not appear to be required by code for this project. An elevator could be an optional item which needs further discussion.
    c. A shading study has not been completed for the parking garage. If elevator and/or stair tower are included in this project then there may be potential for changes to existing shade patterns during certain times of year and day.
    d. New parking will be north of the site while the existing parking for the MICEC will remain on the south side.
    e. The existing hill area may be used for the structure.
    f. Use contour lines shown in the 100% Construction Document set of the MICEC.
    g. May not disturb the existing p-patch to the north.
    h. Pedestrian path can be constructed along the west of the existing parking lot connecting the new structured parking to NE 24th St.
    i. NE 24th St can accommodate additional traffic brought by the new parking structure.
    j. Minimize impact to west neighbors and MICEC
    k. Dry pipe sprinkler system
2. Code Requirements
    a. Current Mercer Island Municipal Code.
    b. Current International Building Code as adopted by City of Mercer Island.
    c. Current International Fire Code as adopted by City of Mercer Island.
    d. Current Uniform Plumbing Code as adopted by City of Mercer Island.
    e. Current Washington Cities Electrical Code as adopted by City of Mercer Island.
3. Constructability Issues

a. Unforeseeable underground condition during excavation.
b. Noise, vibration, and potential soil settlement impact to the houses on the west from soil excavation.
c. Sidewalk connection to SE 24th Street may be challenging due to limited space between the existing parking and the adjacent property line.

4. Conceptual Architectural and Landscaping Solution
    a. Structure will be located in the existing hill area at the northwest corner of the site where there is enough space to accommodate the required number of parking spaces.
    b. Minimize disruption to the existing south parking lot.
    c. Locate access to the new Parking Structure as far as possible from the MICEC to improve clear distinction between two different uses.
    d. Work with existing grade to maintain a low non-intrusive structure to the neighboring houses on the west, while at the same time minimizing costly excavation and high retaining wall.
    e. Maximize open space between the existing MICEC Building and the new Parking Structure.
    f. Single Threaded Helix with One Level Bay parking design provides repetitive, easy to understand for drivers and better visibility across the structure which then improve safety/security.
    g. 90 degree parking stall with 2-way driveway provides the most efficient parking layout.
    h. Staircases and elevator are located on the level part for ease of use and construction, and at corners where these spaces are non-usable as parking spaces, hence improve efficiency.
    i. The new structure shares similar contextual design with the existing Community Center.
    j. Provide potential landscape screening

Alternative 2 - Architectural and Landscaping

1. Assumptions
    a. Same assumptions as listed in Alternative 1 except this will be a surface parking instead of a parking structure.

b. Sound Transit commuters will be generally on the West side of the site, and parking for the MICEC will be generally on the East side.
c. Some impact to the existing MICEC parking lot will be allowed.
d. A sidewalk can be constructed along the west side of the parking lot by the west property line

2. Code Requirements
    a. Current Mercer Island Municipal Code
    b. Current Washington Cities Electrical Code as adopted by City of Mercer Island.
3. Constructability Issues
    a. Unforeseeable underground condition during excavation.
    b. Noise and vibration impact to the houses on the west from soil excavation.
    c. Retaining wall on the west side (cut) and south side (fill).
    d. Sidewalk connection to SE 24th Street may be challenging due to limited space between the existing parking and the adjacent property line.
4. Conceptual Architectural and Landscaping Solution
    a. Generally maximizes surface parking at the existing hill.
    b. Completely separate and distinct entrance from NE 24th St for the new Sound Transit Parking. Sound Transit parking entrance at the west and MICEC parking at the east.
    c. Ability to combine the Sound Transit parking with the MICEC parking into one lot in the future. Also may combine parking areas in the interim with use of removable bollards.
    d. Preserve most of the existing accessible parking stalls and drop-off area at the MICEC.
    e. Allow enough space on the west property line to minimize high retaining wall.
    f. Use wall in combination with 2:1 catch slopes.
    g. Parking stalls are oriented 90 degree with 2-way driveway for efficiency.
    h. Provide landscaping in planter areas between parking rows and potential screening around perimeter of parking lot.
    i. Provide measures to reduce the impacts of headlight glare.

Structural

Alternative 1 – Structural

1. Assumptions

   Based on information provided by the City, the top of existing grade at the northwest corner of the property is located at approximately elevation 160. From there the grade slopes down to the south and east. According to available geotechnical information, the top 25 feet of soil consists largely of fill with competent soil located below elevation 135. The maximum allowable temporary slope is 1.5:1 and the maximum permanent slope is 2:1. It is assumed permanent easements outside of the MICEC property will not be permitted. Therefore, soldier pile walls with permanent tie backs extending outside property lines are not feasible. In addition, soil nail walls are not recommended due to their ineffectiveness in the loose fill material.

2. Code Requirements

   Structural Design of the parking structure and retaining walls will be governed by the current City of Mercer Island Municipal Code and the International Building Code as adopted by the City.

3. Conceptual Structural Solution and Constructability

   Alternative 1 is a three-level parking structure with some exterior surface parking stalls. The parking structure could be constructed with either precast elements and/or cast-in-place concrete, with slabs and beams supported on columns. It is 280 feet long along the north-south axis and 115 feet wide. Vehicles enter the south end of the ramp at elevation 136. The floor to floor height of the ramp is 10 feet and the upper level elevation is 156. The top elevation is slightly lower than the approximate existing ground elevation of 160 to minimize visual impact to residences behind the west property line. Since the majority of the parking ramp is below existing grade retaining walls are required along both the west and a portion of the north side of the structure. Existing ground along the south and east sides of the structure can be permanently removed to minimize or eliminate retaining walls.

   Cost savings can be achieved by limiting the height of the retaining walls. While it is preferable to locate the structure away from the MICEC on the east, this needs to be

balanced by maintaining sufficient distance from the west property line to minimize retaining wall height. Alternative 1 places the west side of the ramp 30 feet from the property line. The first 5 feet from the line is level while the remaining 25 feet to the parking structure wall slopes down at a 2:1 slope. The slope intersects the ramp structure at approximately elevation 148 which is near the lowest level on the west side of the ramp (elevation 146). As a result only a short retaining wall is required. Lowering the finished ground line along the west side of the structure exposes approximately 8 feet of the parking structure. However, landscaping can help mitigate the visual impact of the exposed surface. For safety, a barrier or rail along the upper perimeter of the parking structure will be required.

The base elevation for the west side of the ramp is 146, approximately 10 feet above competent soil. Since the overlying fill lacks bearing capacity spread footing foundations would need to be located below elevation 135. This would require substantial excavation and tall temporary shoring walls. Instead, drilled shafts foundations extending below elevation 135 can be used to support the parking structure. The shafts would be 3 or 4 feet in diameter and space approximately 10 feet on center. A short temporary wall located 4 feet from the edge of the parking structure would be required to construct the shafts. A cantilevered soldier pile wall is feasible for the temporary wall. To minimize wall height a temporary 1.5:1 slope from the property line could be used.

Portions of the ramp structure will consist of slab on grade. Since the soil above elevation 135 consists largely of fill, slabs above this level may require ground improvements or over excavation to support the slab. Possible ground improvements could include stone columns, preloading, or deep soil mixing. Over excavation would require substantial temporary retaining walls along the west and north sides of the parking structure.

Alternative 2 - Structural

1. Assumptions

   Based on information provided by the City, the top of existing grade at the northwest corner of the property is located at approximately elevation 160. From there the grade slopes down to the south and east. According to available geotechnical information, the top 25 feet of soil consists largely of fill with competent soil located below elevation 135.

The maximum allowable temporary slope is 1.5:1 and the maximum permanent slope is 2:1. It is assumed permanent easements outside of the MICEC property will not be permitted. Therefore, soldier pile walls with permanent tie backs extending outside property lines are not feasible. In addition, soil nail walls are not recommended due to their ineffectiveness in the loose fill material.

2. Code Requirements

   Structural Design of the parking structure and retaining walls will be governed by the current City of Mercer Island Municipal Code and the International Building Code as adopted by the City.

3. Conceptual Structural Solution & Constructability

   Alternative 2 is a 2-tiered surface parking lot. It is located approximately 40 feet from the west property line and 15 feet from the north property line. The three main parking rows are aligned north-south, although the southern portion of the parking lot follows the curve along the northern edge of the existing surface parking. Parking elevations vary from approximately 123 on the southeast corner to 143 at the northwest corner.

   As noted above the top existing grade elevation at the northwest portion of the property is approximately 160. Since the west edge of the parking lot varies in elevation from 140 to 135 a retaining wall will likely be required. To minimize wall height the finished ground line from the west property lines can be graded at a 2:1 slope. The first 5 feet from the property line will remain level to minimize disturbance to the existing property owners. The remaining 30 feet slopes down to the edge of parking walkway. At a 2:1 slope the grade drops approximately 15 feet which places the catch point at about elevation 145. This is close to the parking surface elevation. However, a cut wall will likely be required to provide a drainage ditch and prevent runoff onto the parking ramp. Since the wall is relatively short a cantilevered soldier pile wall is feasible. Alternatively, an MSE wall may be suitable.

   Since the soil above elevation 135 is primarily fill, parking surface elevations above this level may require some over excavation and replacement with structural fill. Note that over excavation may require temporary retaining walls along the west and north sides of the surface lot.

Geotechnical

Alternative 1 - Geotechnical

1. Assumptions
    a. Design and construction considerations will be developed based on adequate geotechnical site explorations and laboratory tests to characterize existing soil and groundwater conditions.
    b. The construction area will be adequately set back from the property boundary lines to minimize impacts and disturbances to adjacent properties.
    c. Temporary open cuts at 1.5H:1V slope for excavations less than 20 feet deep will be possible in the existing fill stockpile area where the parking structure will be located.
    d. Temporary support of vertical excavations and permanent retaining walls exceeding about 10 feet are not expected.
2. Code Requirement

    We understand that the design of the parking structure will be based on the International Building Code (IBC 2012) with statewide and City of Mercer Island amendments as applicable.
3. Constructability Issues
    a. The existing uncontrolled fill stockpile will be considered for the construction of the parking structure.
    b. Removal and disposal of the surplus excavated soil will need to be considered.
    c. The site soils are generally silty and would likely not be suitable for reuse as structural fill during wet weather construction.
    d. Groundwater is not expected to be a significant issue during construction.
    e. Required setback and slopes for the temporary open cut excavations should be assessed based on the results of geotechnical site explorations and laboratory testing.
4. Conceptual Geotechnical Solutions
    a. Seismic design should include adequate considerations of the possible earthquake-induced geotechnical hazards applicable to the site.

b. Adequate subgrade for pavement or slab-on-grade support will likely be available at or below elevation 135 feet, and over excavation and backfill with structural fill or other ground improvement will likely be necessary at higher elevations.
c. Use of shallow footings to support column loads will likely be possible where the floor slab is planned at elevation 136 feet. Short drilled piers or auger-cast piles, and stone columns or other ground improvements may be used where the floor slab is planned at elevation 146 feet.
d. Design and construction of retaining walls and permanent slopes should include static and seismic stability considerations based on the results of geotechnical site explorations and laboratory testing.
e. If infiltration of surface runoff is planned, a site-specific assessment of the infiltration potential should be conducted.

Alternative 2 - Geotechnical

1. Assumptions
    a. Design and construction considerations will be developed based on adequate geotechnical site exploration and laboratory tests to characterize existing soil and groundwater conditions.
    b. The construction area will be adequately set back from the property boundary lines to minimize impacts and disturbances to adjacent properties.
    c. Temporary open cuts at 1.5H: 1V slope for excavations less than 20 feet deep will be possible in the existing fill stockpile area where the surface parking will be located.
    d. Temporary support of vertical excavations and permanent retaining walls exceeding about 10 feet are not expected.
2. Code Requirement

    We understand that the design and construction of the surface parking will be based on the City of Mercer Island Code.

3. Constructability Issues
    a. The existing uncontrolled fill stockpile will considered for the construction of the surface parking.
    b. Removal and disposal of the surplus excavated soil will need to be considered.

c. The site soils are generally silty and would likely not be suitable for reuse as structural fill during wet weather construction.
d. Groundwater is not expected to be a significant issue during construction.
e. Required setback and cut slopes for construction of the surface parking should be assessed based on the results of geotechnical site explorations and laboratory testing.

4. Conceptual Geotechnical Solutions
    a. Seismic design should include adequate considerations of the possible earthquake-induced geotechnical hazards applicable to the site.
    b. Adequate subgrade for the parking pavement support will likely be available at or below elevation 135 feet, and over excavation and backfill with structural fill or other ground improvement will likely be necessary at higher elevations.
    c. Design and construction of retaining walls and permanent slopes should include static and seismic stability considerations based on the results of geotechnical site exploration and laboratory testing.
    d. If infiltration of surface runoff is planned, a site-specific assessment of the infiltration potential should be conducted. Use of permeable pavement may be considered if feasible.

Wet Utilities

1. Existing Conditions
    a. Water – City of Mercer Island GIS Portal identifies an existing water main located in SE 24th Street and 84th Avenue SE. On-site fire hydrants are located at the main vehicle access at SE 24th Street, the vehicle drop off, and at the north east corner off the MICEC building.
    b. Sewer – City of Mercer Island GIS Portal identifies an existing sewer manhole and sewer main located adjacent to the west property line.

Alternative 1 – Wet Utilities

1. Assumptions
    a. Water and Sewer utilities are available
2. Code Requirements
    a. City of Mercer Island
3. Constructability
    a. There may be trenching impacts for the water main extension
    b. Depth of existing sewer main located adjacent to the west property line will need to be verified to determine if sewer connection can be made.
4. Conceptual Water and Sewer Solution
    a. Provide sewer service for floor drains inside the parking garage and elevator pit. Sewer service to connect to existing sewer main located adjacent to west property line.
    b. Provide a water main extension for new fire hydrant located near the parking garage.
    c. Provide a domestic water service to serve the garage from existing water main. Domestic service to serve parking garage hose bibs.
    d. Provide irrigation service connection to serve potential landscape screening. Irrigation service may potentially be connected to existing on-site irrigation system. Irrigation to provide appropriate cross-connection control.

Alternative 2– Wet Utilities

1. Assumptions
    a. No sewer service is required
2. Code Requirements
    a. City of Mercer Island
3. Constructability
    a. There may be trenching impacts for the water main extension
4. Conceptual Water Solution
    a. Provide a water main extension for new fire hydrants as required by Fire Marshall.
    b. Provide irrigation service connection to serve planter islands and potential landscape screening around perimeter. Irrigation service may potentially be connected to existing on-site irrigation system. Irrigation to provide appropriate cross-connection control.

Electrical and Lighting

1. Power Supply:
   A site survey was conducted to determine the best and most economical means to provide power supply to the site. Electric power for the proposed project can be derived with two options. The first option is to connect directly to the existing utility power pole located at the south side of SE 24th Street. Underground primary cable will extend the utility power from the utility pole to a pad-mounted transformer located adjacent to the new electrical panel completed with utility metering. The second option is to connect the power through the existing MICEC electrical distribution system. The existing MICEC electrical service contains a 225 amperes rated spare breaker which can be utilized to serve the proposed parking addition.
2. Lighting:
   The lighting system will be designed to continue the aesthetic appearance of the MICEC lighting element. The lighting level will be sufficient for pedestrian and vehicular safety. The site lighting will comply with the IESNA design standard for “Parking and Drive Aisles.” Lighting fixtures will contain cut off shielding to limit the spread of emitted light to adjacent areas.

Alternative 1 – Electrical and Lighting

1. Electrical Design Element:
   a. Ceiling mounted LED type lighting fixture to illuminate parking structure.
   b. Control system to integrate day lighting sensors and occupancy sensors to reduce energy cost.
   c. 12 foot tall pole LED lights with full cut-off distribution pattern to illuminate exterior drive ways.
   d. Fire alarm system with horn/strobe and connection to the elevator recall system.
   e. Spare raceway for camera and Code Blue Station.
2. Estimated Electrical Load Requirement:
   a. Lighting…16 KVA
   b. Elevator...15 KVA
      Total…… 31 KVA (37 amperes at 277/480 volt)

This option requires a complete electrical service panel and distribution system to support the elevator and parking structure lighting electrical load. A 100 ampere, 480/277 volt electrical service with spare capacity for future load additions (i.e. electrical car chargers) is recommended.

Alternative 2 – Electrical and Lighting

1. Electrical Design Element:
    a. 12 foot tall pole mounted lights with full cut-off LED type.
    b. Spare conduit for camera and Code Blue Station.
2. Estimated Electrical Load Requirement:
    a. (30) – 12 foot tall pole mounted lights at 80 watt each (2400 watt, 5 ampere at 480 volt).

The proposed lighting addition can be connected to the existing MICEC exterior lighting circuit. Additional conductors can be installed through existing underground raceway and pull boxes for connection to the MICEC Exterior lighting control panel.

Delivery Schedule

- Attached - 1 page at 11x17

Using an acquisition strategy for design-build procurement for the project, the schedule identifies a start date for developing RFQ and RFP documents on 10/17/2014 (assuming this study is part of the procurement document development) which results in project acceptance on 1/26/2017. The development of these procurement documents would be a joint effort of Sound Transit and possible consultant.

The design-build procurement schedule is based on Huitt-Zollars' understanding of Sound Transit's design-build procurement process as used on S440, S445, MOW and E360, but simplified without inclusion of a Draft RFP release for industry review and reduced time periods for SOQ evaluations, interviews, one-on-one meetings, ATC reviews and such. We recommend that this procurement schedule be vetted through Sound Transit Contracts and others within DECM. We realize that this is an aggressive delivery schedule given the constraint of a first quarter 2017 delivery date for the project.

Note that parking garages for design-build procedure are allowed by RCW 39.10.300, so no Project Review Committee (PRC) application needs to be made and has not been included in the schedule. If the project is thought to only be provided by a surface parking solution, PRC approval would be required if a design-build procurement strategy is used. Should Sound Transit and Mercer Island decide that a surface parking solution without any garage is preferred, we would recommend that Sound Transit pursue a conventional design-bid-build procurement approach.

Tue 11/18/14

DRAFT

Mercer Island Parking Expansion - Design-Build Delivery Schedlue

ID	Task Name	Duration	Start	Finish
1	**Mercer Island Parking**	**595 days**	**Fri 10/17/14**	**Thu 1/26/17**
2	**DB Procurement**	**263 days**	**Fri 10/17/14**	**Tue 10/20/15**
3	**Develop RFQ and RFP docs**	**141 days**	**Fri 10/17/14**	**Fri 5/1/15**
29				
30	**Issue Public Advertisement to NTP**	**173 days**	**Thu 2/19/15**	**Tue 10/20/15**
31	**RFQ issue, SOQ evaluations & Shortlist**	**51 days**	**Thu 2/19/15**	**Fri 5/1/15**
41	**RFP issue, ATCs review, & receive Proposals**	**55 days**	**Fri 5/1/15**	**Fri 7/17/15**
51	**DB Contractor selection**	**25 days**	**Mon 7/20/15**	**Fri 8/21/15**
56	**CCB to Award**	**10 days**	**Mon 8/17/15**	**Fri 8/28/15**
61	**Board Approval / Contract Award**	**25 days**	**Wed 8/26/15**	**Tue 9/29/15**
68	**DB Contract Execution**	**15 days**	**Wed 9/30/15**	**Tue 10/20/15**
76				
77	**DB Contract Design & Construction**	**327 days**	**Wed 10/28/15**	**Thu 1/26/17**
78	**Design (assuming 4 packages)**	**162 days**	**Wed 10/28/15**	**Thu 6/9/16**
79	Site Prep & Earthworks Package	6 wks	Wed 10/28/15	Tue 12/8/15
80	Utilities and Drainage package	8 wks	Wed 11/25/15	Tue 1/19/16
81	Paving and/or Garage package	12 wks	Wed 12/16/15	Tue 3/8/16
82	Landscape / Hardscape / Signage Package	8 wks	Wed 2/10/16	Tue 4/5/16
83	Permitting	6 mons	Wed 12/9/15	Thu 6/9/16
84	**Parking Construction**	**275 days**	**Fri 1/8/16**	**Thu 1/26/17**
85	Site Prep	1 mon	Fri 1/8/16	Mon 2/8/16
86	Earthwork Operations	3 mons	Fri 3/11/16	Fri 6/10/16
87	UG Utilities & Drainage	3 mons	Fri 3/11/16	Fri 6/10/16
88	Paving work	5 mons	Mon 6/13/16	Fri 11/11/16
89	Build Garage	7 mons	Mon 5/2/16	Thu 12/1/16
90	Fine Grading, Landscape, Hardscape, Signage	2 mons	Mon 11/14/16	Thu 1/12/17
91	Commissioning & Testing	3 wks	Fri 1/6/17	Thu 1/26/17
92	Project Acceptance & Turnover	0 days	Thu 1/26/17	Thu 1/26/17