NOTES:

1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. CAPPING ELEVATIONS SHOWN REPRESENT MAXIMUM ELEVATION ALLOWED (INCLUDES OVER-PLACEMENT ALLOWANCES).
3. CONTRACTOR SHALL COMPLETE CAPPING ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
4. SEE REFERENCE SHEET C-24 FOR CONTROL POINT TABLE.

LEGEND:

- 10 — TOP OF CAP AREA CONTOURS
- EXISTING BATHYMETRY
- C-11 — CONTROL POINT LOCATION AND DESIGNATION
- CAP TYPE 1 AREA (1 / C-21)
- CAP TYPE 2 AREA (2 / C-21)
- CAP TYPE 3 AREA (3 / C-21)
- CAP TYPE 4 AREA (4 / C-21)

CENTRAL WATERFRONT AREA

PORT OF BELLINGHAM
(FORMER CHEVRON PROPERTY)

PORT OF BELLINGHAM PROPERTY
(FORMER CITY OF BELLINGHAM)

PORT OF BELLINGHAM/
MERIDIAN PACIFIC
PROPERTY BOUNDARY

MERIDIAN PACIFIC
PROPERTY

BARGE RAMP
(RELOCATED POSITION)

WEST CENTRAL
WATERFRONT WALL

REPLACEMENT
MAPLE STREET
BULKHEAD

NORTH INNER WATERWAY
AREA STATION LINE

EAST CENTRAL
WATERFRONT WALL

EXISTING BULKHEAD
(CONCRETE)

LIMIT OF WORK

2.5 H:1V
SIDESLOPE

2H:1V SIDESLOPE

2.0 H:1V
SIDESLOPE

3H:1V SIDESLOPE

3H:1V

LOCATION OF SUBSURFACE
PIPE LINES TO ASB (APPROX.)

GP DOCK

GP DOCK BULKHEAD
LINE

SOUTH INNER WATERWAY
AREA STATION LINE

DOCK EDGE

FOAM TANK / CATWALK /
DOLPHIN PILE DEMO AREA

TOP OF BANK
(APPROXIMATE)

NATURAL RECOVERY
AREA (NO CAPPING)

NORTH

PROJECT
NORTH

0 40 80
SCALE IN FEET

ONE INCH
AT FULL SIZE, IF NOT ONE
INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

PORT OF BELLINGHAM
Washington State

ANCHOR QEA
720 OLIVE WAY, SUITE 1900 | SEATTLE, WA 98101
(206) 287-9130

kpff Consulting Engineers
101 Stewart Street, Suite 400
Seattle, Washington 98101
(206) 382-0600 Fax (206) 382-0500

MATTHEW W WOLTMAN
STATE OF WASHINGTON
42344
REGISTERED
PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

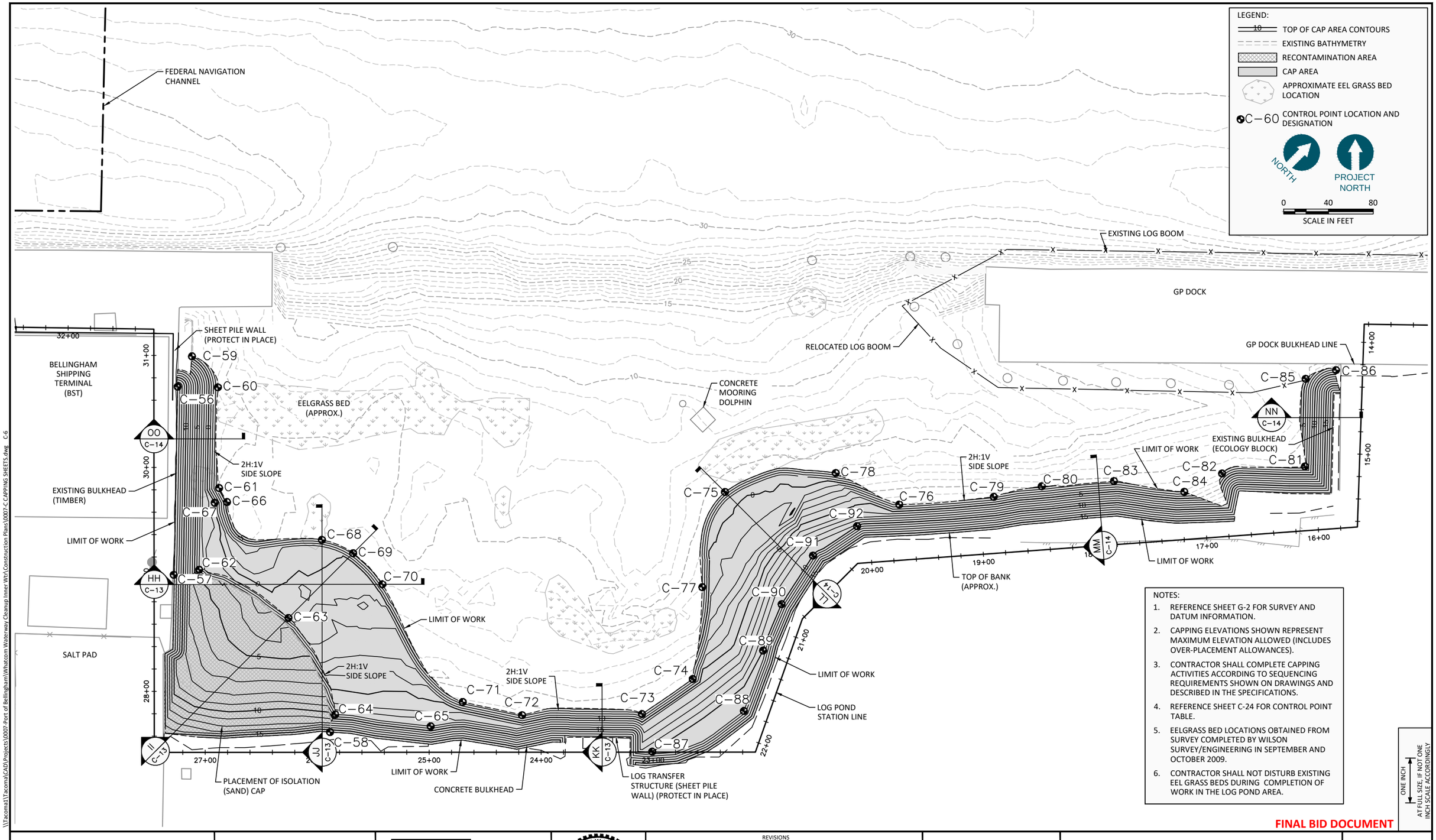
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

INNER WATERWAY CAP TYPE PLAN

C-5.1

SHEET NO. 39 OF 104

May 20, 2013 8:31pm dholmer \\Tacoma\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C-CAP TYPE SHEETS.dwg C-5.1



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4. REFERENCE SHEET C-24 FOR CONTROL POINT TABLE.
5. EELGRASS BED LOCATIONS OBTAINED FROM SURVEY COMPLETED BY WILSON SURVEY/ENGINEERING IN SEPTEMBER AND OCTOBER 2009.
6. CONTRACTOR SHALL NOT DISTURB EXISTING EEL GRASS BEDS DURING COMPLETION OF WORK IN THE LOG POND AREA.

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

\\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C CAPPING SHEETS.dwg C6
May 20, 2013 8:31pm dholmer

PORT OF BELLINGHAM Washington State

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5/20/13

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APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

LOG POND CAPPING PLAN

C-6

SHEET NO. 40 OF 104

NORTH

PROJECT NORTH

0 40 80

SCALE IN FEET

LEGEND:

- TOP OF CAP AREA CONTOURS
- EXISTING BATHYMETRY
- C-60 CONTROL POINT LOCATION AND DESIGNATION
- CAP TYPE 3 AREA (3 / C-21)
- CAP TYPE 5A AREA (5 / C-21)
- CAP TYPE 5B AREA (6 / C-21)
- CAP TYPE 6 AREA (7 / C-21)

NOTES:

1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
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5. EELGRASS BED LOCATIONS OBTAINED FROM SURVEY COMPLETED BY WILSON SURVEY/ENGINEERING IN SEPTEMBER AND OCTOBER 2009.

FEDERAL NAVIGATION CHANNEL

BELLINGHAM SHIPPING TERMINAL (BST)

SHEET PILE WALL (PROTECT IN PLACE)

EXISTING BULKHEAD (TIMBER)

LIMIT OF WORK

SALT PAD

EELGRASS BED (APPROX.)

2H:1V SIDE SLOPE

CONCRETE MOORING DOLPHIN

EXISTING LOG BOOM

RELOCATED LOG BOOM

GP DOCK

EXISTING BULKHEAD (ECOLOGY BLOCK)

TOP OF BANK (APPROX.)

LOG POND STATION LINE

PLACEMENT OF ISOLATION (SAND) CAP

CONCRETE BULKHEAD

LOG TRANSFER STRUCTURE (SHEET PILE WALL) (PROTECT IN PLACE)

FINAL BID DOCUMENT

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

\\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C CAP TYPE SHEETS.dwg C-6.1

May 20, 2013 8:31pm dholmer

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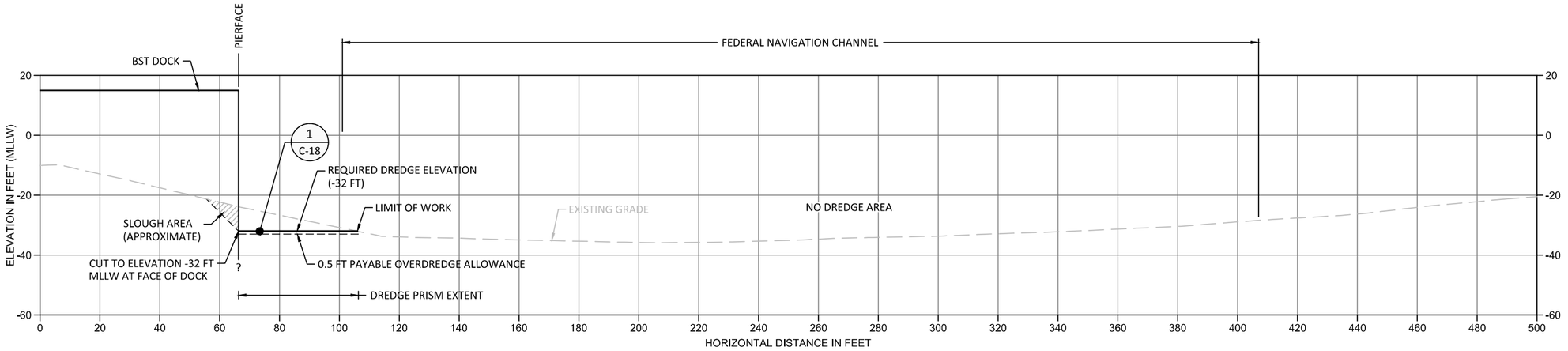
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

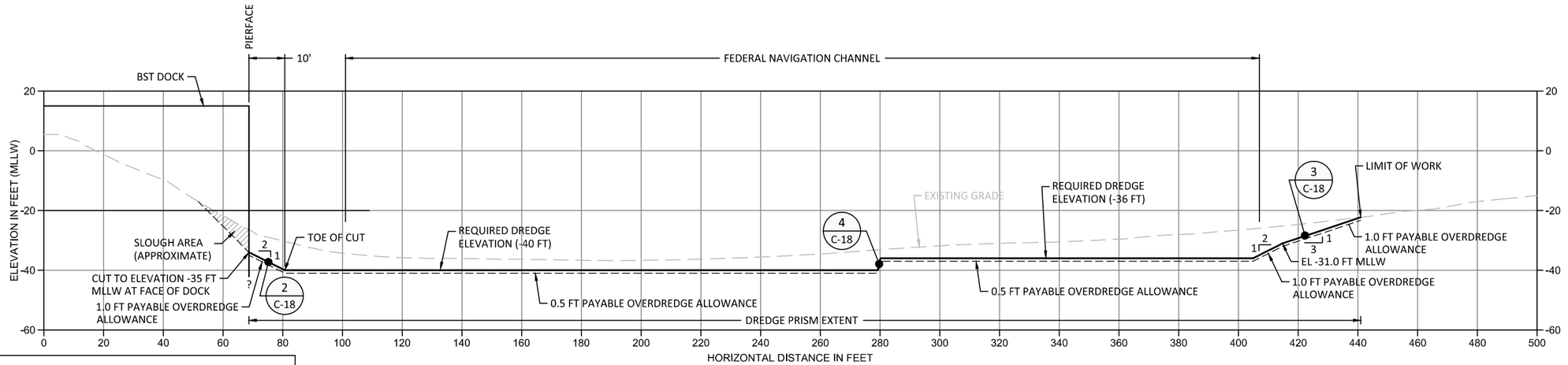
LOG POND CAP TYPE PLAN

C-6.1

SHEET NO. 41 OF 104



A C-2 SECTION: BERTH 2 DREDGING
SCALE: 1" = 20'



B C-2 SECTION: BERTH 1 DREDGING
SCALE: 1" = 20'

NOTES:
1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. PAYABLE OVERDREDGE ALLOWANCE ON SIDESLOPE AREAS WILL BE +1.0 FT. PAYABLE OVERDREDGE ALLOWANCE FOR ALL OTHER AREAS IS +0.5 FT UNLESS OTHERWISE NOTED ON DRAWINGS.
3. DO NOT PERFORM EXCESSIVE DREDGING AT TOE OF CUT OR IN SLOPE AREAS.
4. CONTRACTOR SHALL COMPLETE DREDGING ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
5. CONTRACTOR SHALL REMOVE SLOUGH MATERIAL (AS APPLICABLE) AT FACE OF DOCK AS PART OF REQUIRED DREDGING WORK. ANTICIPATED SLOUGH VOLUME IS INCLUDED IN THE BID ITEM FOR REQUIRED DREDGING.
6. NO UNDER-PIER DREDGING WILL BE PERFORMED.

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5/20/13

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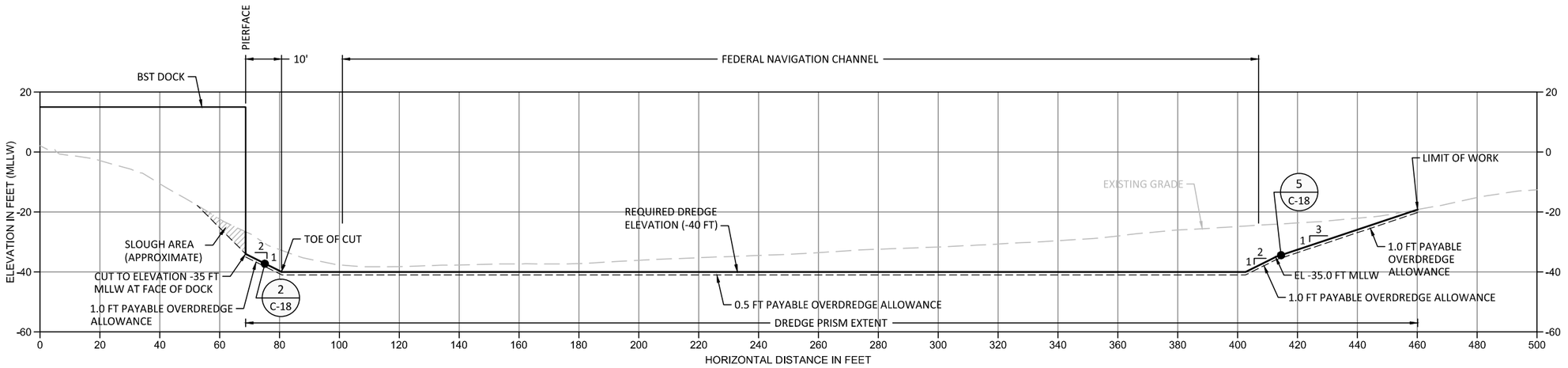
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

BST DREDGING CROSS-SECTIONS

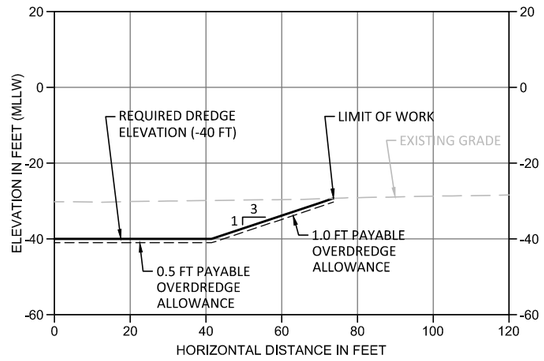
C-7

SHEET NO. 42 OF 104

May 20, 2013 8:32pm dholmer \\Tacoma\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C SHEETS.dwg C-7



C / C-2 SECTION: BERTH 1 DREDGING
SCALE: 1" = 20'



D / C-2 SECTION: BERTH 1 DREDGING
SCALE: 1" = 20'

NOTES:

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Washington State

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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

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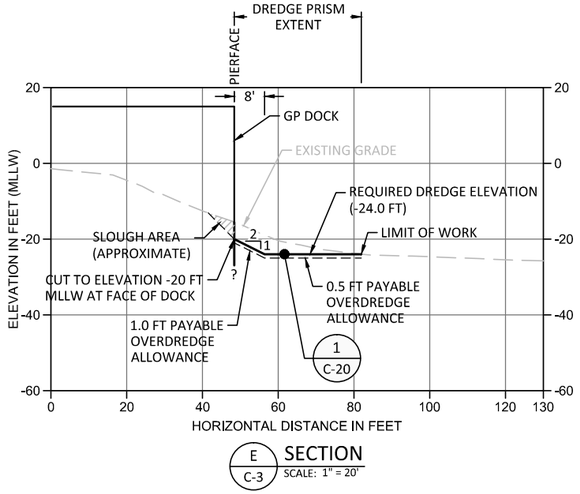
DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

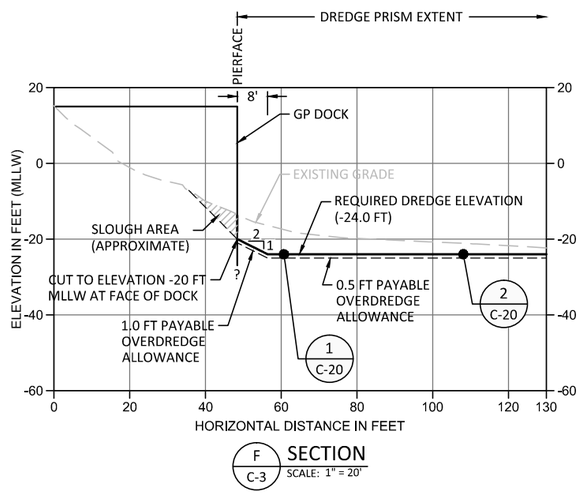
BST DREDGING CROSS-SECTIONS

C-8

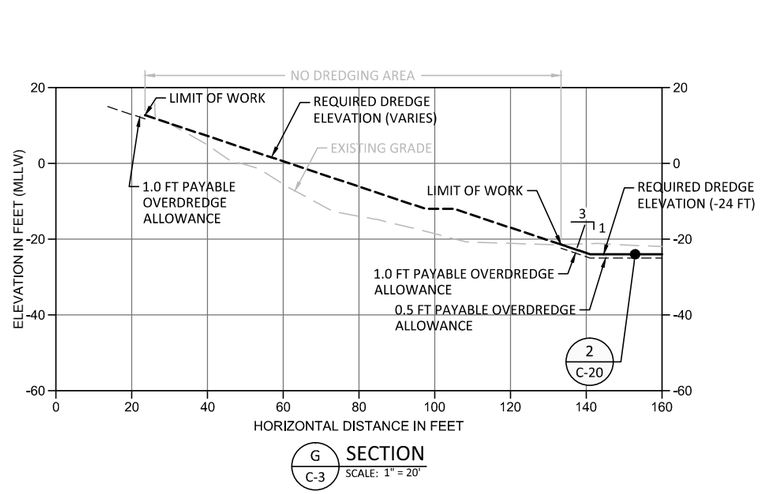
SHEET NO. 43 OF 104



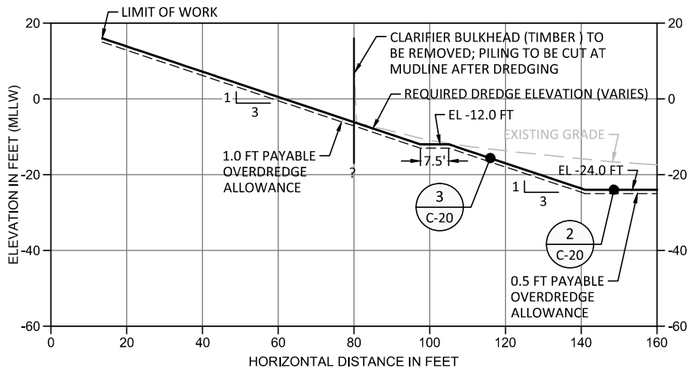
E / C-3 SECTION
SCALE: 1" = 20'



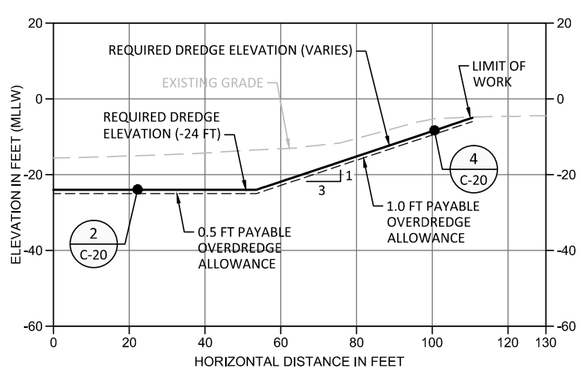
F / C-3 SECTION
SCALE: 1" = 20'



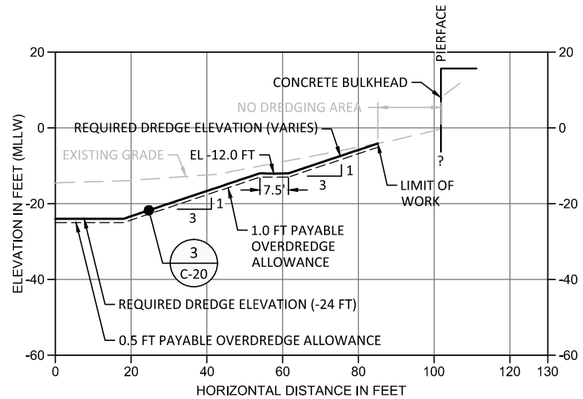
G / C-3 SECTION
SCALE: 1" = 20'



H / C-3 SECTION
SCALE: 1" = 20'



I / C-3 SECTION
SCALE: 1" = 20'



J / C-3 SECTION
SCALE: 1" = 20'

NOTES:

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FINAL BID DOCUMENT

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

PORT OF BELLINGHAM Washington State

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(206) 287-9130

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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
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SCALE: AS NOTED
DATE: MAY 2013

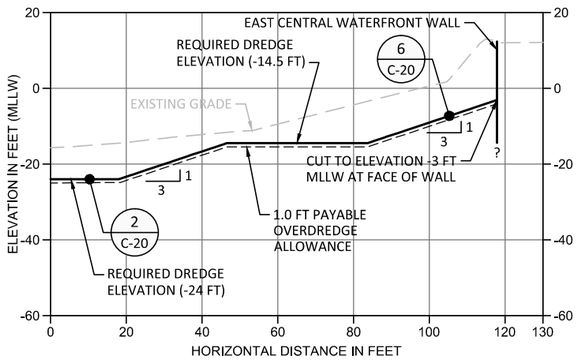
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

INNER WATERWAY DREDGING CROSS-SECTIONS

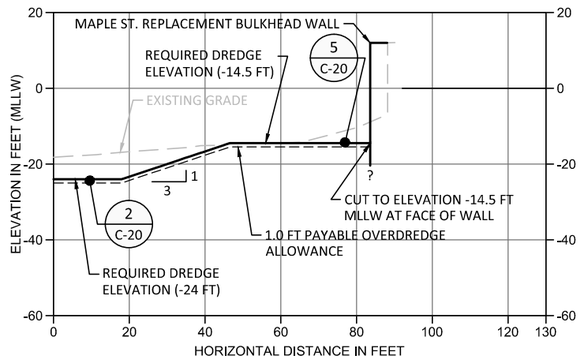
C-9

SHEET NO. 44 OF 104

May 20, 2013 8:32pm dholmer \\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C-SHEETS.dwg C-9



K C-3 SECTION SCALE: 1" = 20'



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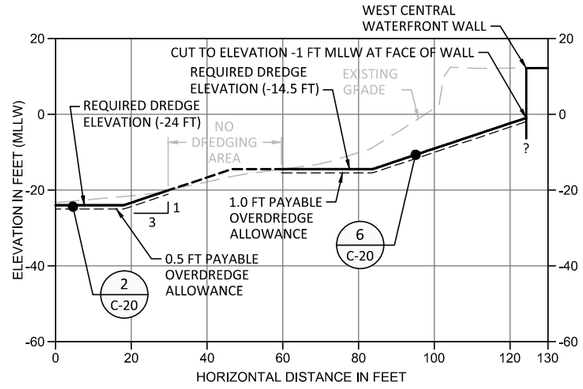

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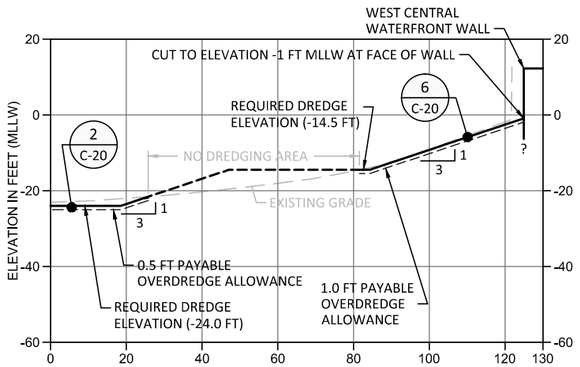
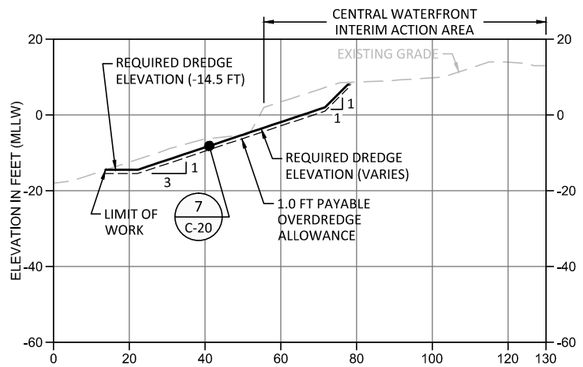
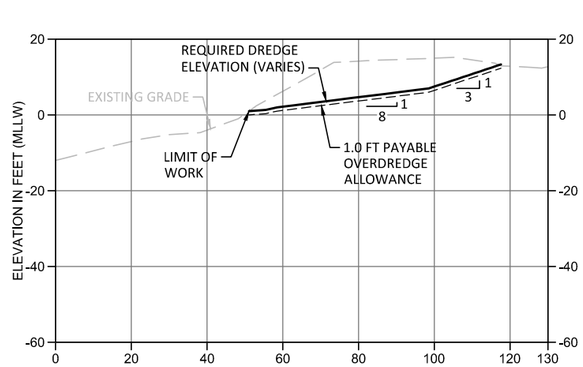


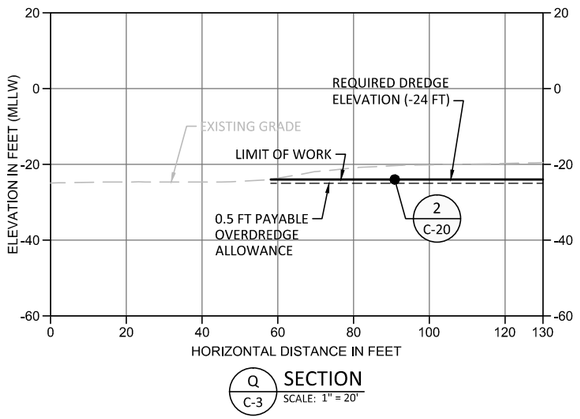
N C-3 SECTION SCALE: 1" = 20'



O C-3 SECTION SCALE: 1" = 20'



P C-3 SECTION SCALE: 1" = 20'



Q C-3 SECTION SCALE: 1" = 20'

NOTES:

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ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER — 5/20/13

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REV	DATE	BY	APP'D	DESCRIPTION

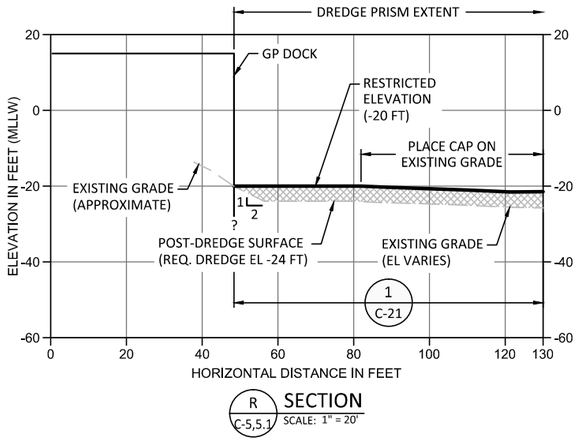
DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

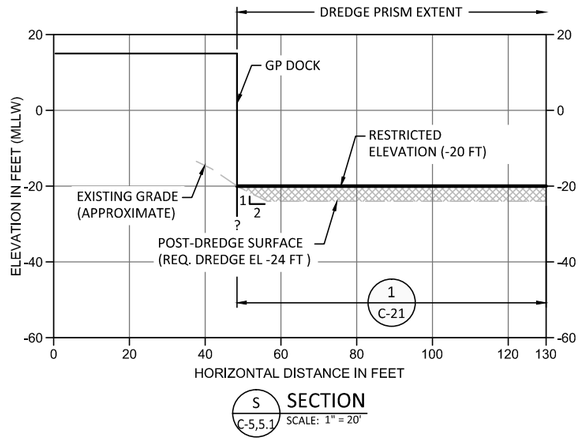
INNER WATERWAY DREDGING CROSS-SECTIONS

C-10

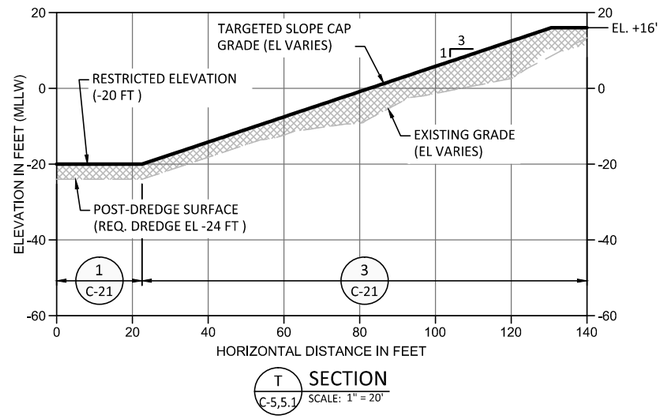
SHEET NO. 45 OF 104



R SECTION C-5,5.1 SCALE: 1" = 20'



S SECTION C-5,5.1 SCALE: 1" = 20'



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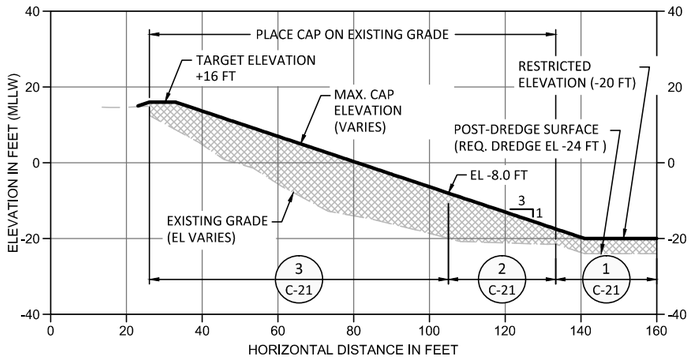

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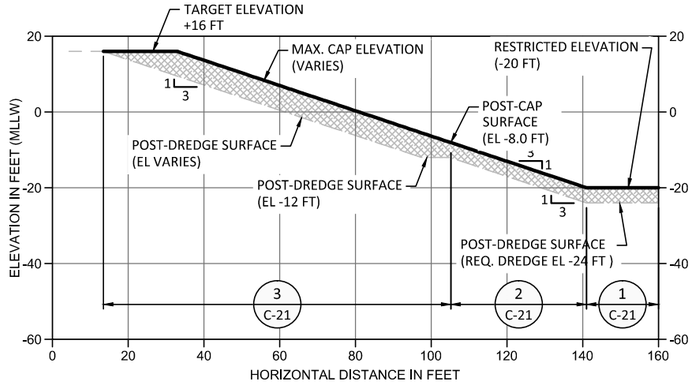

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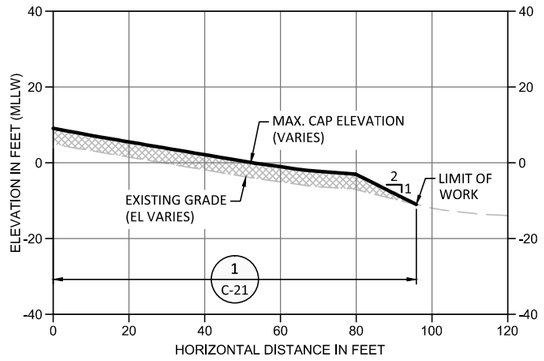

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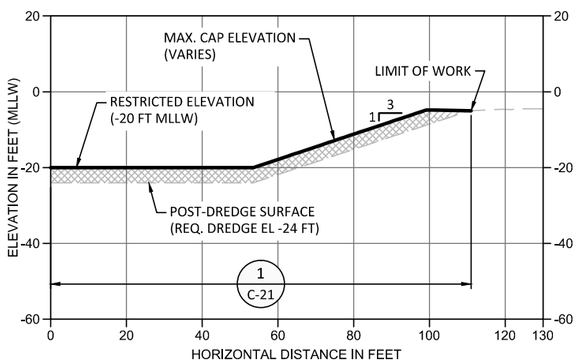

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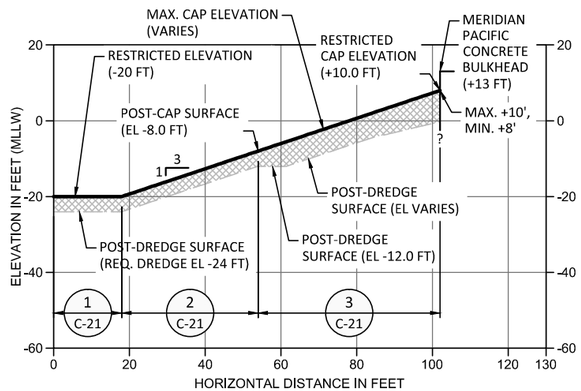

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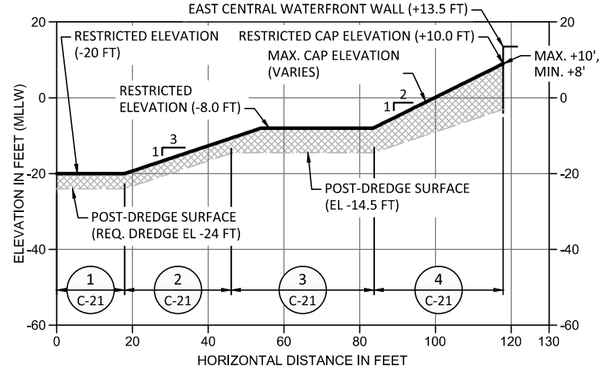

Z SECTION C-5,5.1 SCALE: 1" = 20'

LEGEND:

CAP LAYER

NOTES:

1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. REFERENCE SHEET C-5.1 FOR PLAN VIEW OF LOCATIONS FOR EACH CAP TYPE
3. CAP MATERIAL SHALL NOT BE PLACED ABOVE THE IN-WATER TOP OF SLOPE RESTRICTED ELEVATIONS.
4. CONTRACTOR SHALL COMPLETE CAPPING ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
5. TOP OF CAP IN SECTIONS REPRESENT THE MAXIMUM ELEVATION FOR CAP PLACEMENT PER THE CONTRACT REQUIREMENTS. MINIMUM CAP THICKNESS REQUIREMENTS AND OVERPLACEMENT ALLOWANCES ARE PRESENTED IN THE SPECIFICATIONS.
6. NO UNDER-PIER PLACEMENT OF CAP MATERIAL WILL BE PERFORMED AS PAR TOF THIS CONTRACT.

ONE INCH AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

\\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C CAPPING SHEETS.dwg C-11

May 20, 2013 8:32pm dholmer

PORT OF BELLINGHAM Washington State

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MATTHEW W WOLTMAN STATE OF WASHINGTON 42344 REGISTERED PROFESSIONAL ENGINEER 5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

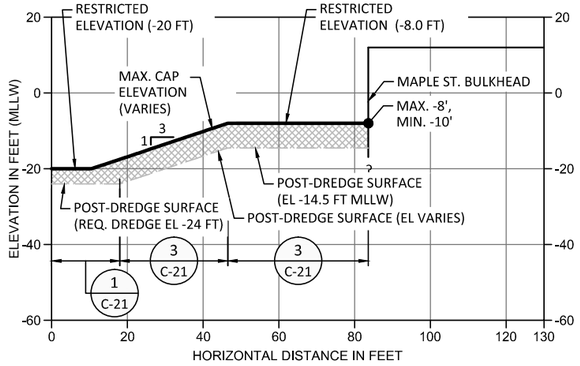
DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

INNER WATERWAY CAPPING CROSS-SECTIONS

C-11

SHEET NO. 46 OF 104



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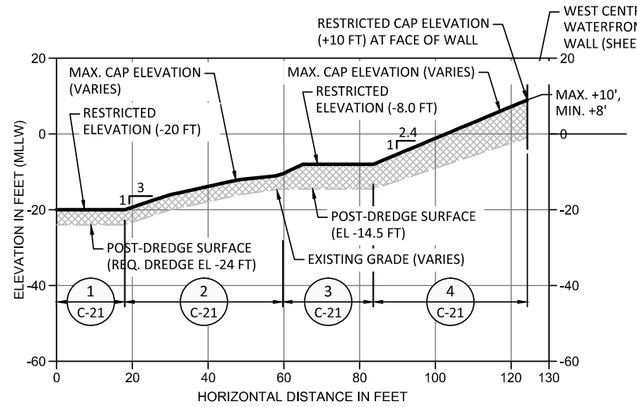

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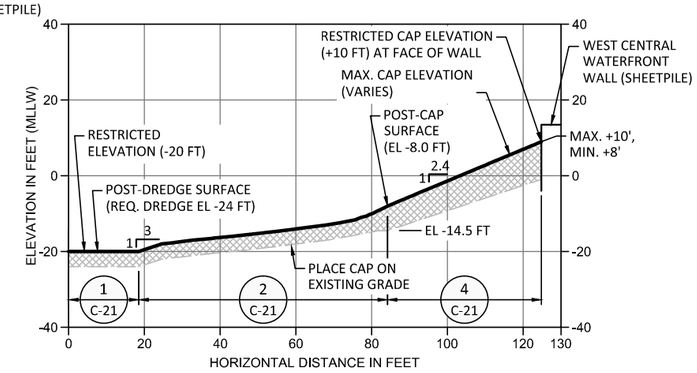

CC SECTION
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LEGEND:

CAP LAYER

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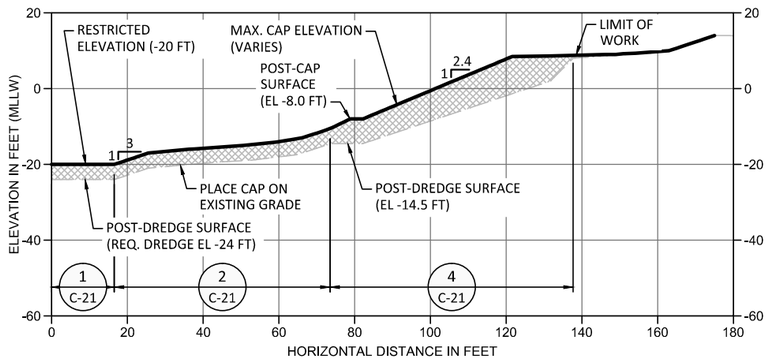

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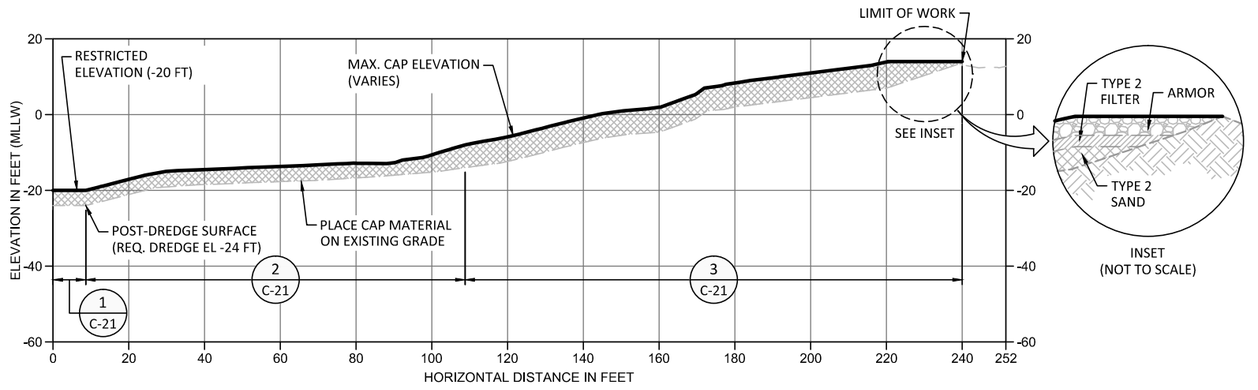
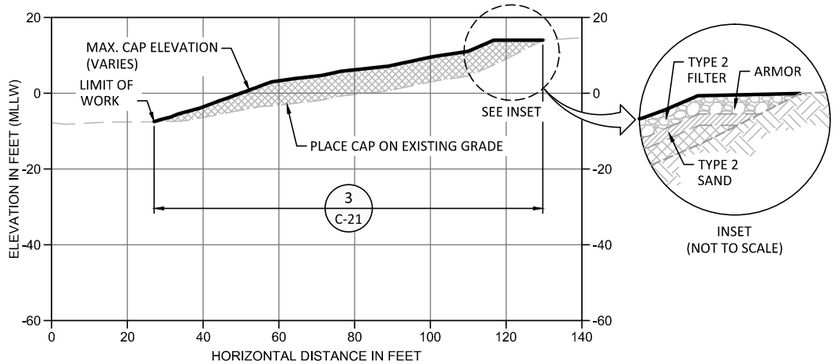
C-5,5.1 SCALE: 1" = 20'



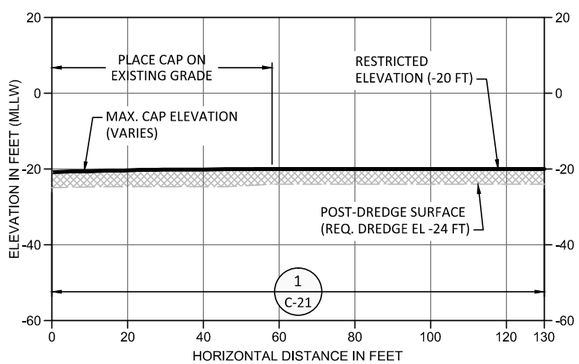
INSET
(NOT TO SCALE)

EE SECTION
C-5,5.1 SCALE: 1" = 20'



INSET
(NOT TO SCALE)

FF SECTION
C-5,5.1 SCALE: 1" = 20'



GG SECTION
C-5,5.1 SCALE: 1" = 20'

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PORT OF BELLINGHAM
Washington State

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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

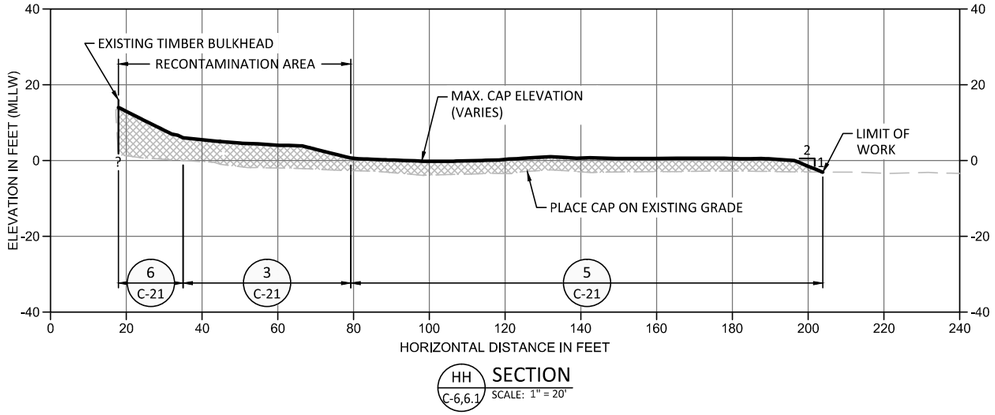
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

INNER WATERWAY CAPPING CROSS-SECTIONS

C-12

SHEET NO. 47 OF 104

\\Tacoma\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C CAPPING SHEETS.dwg C-12
May 20, 2013 8:32pm dholmer



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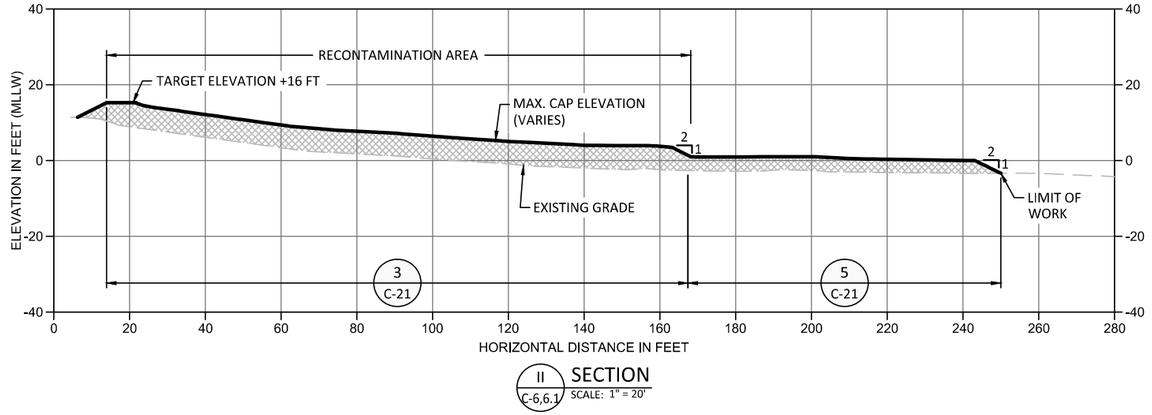
SCALE: 1" = 20'



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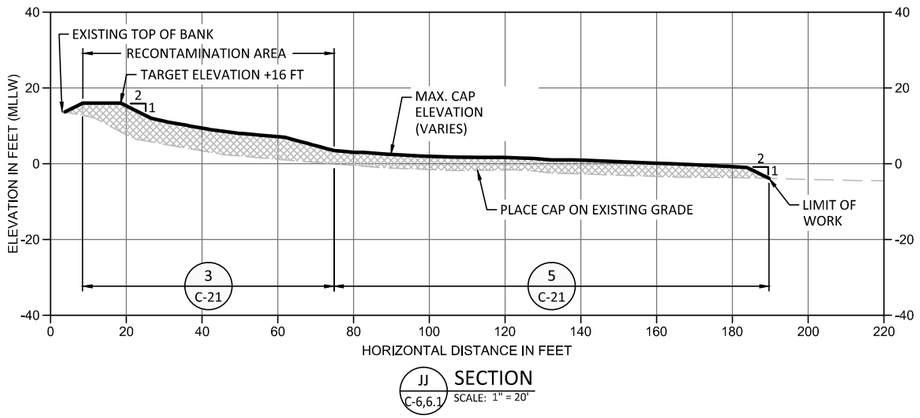

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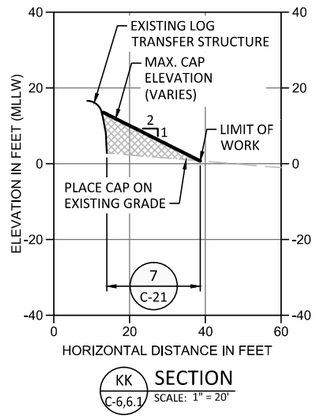

KK C-6,6.1 SECTION
SCALE: 1" = 20'

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CAP LAYER

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MATTHEW W WOLTMAN
STATE OF WASHINGTON
42344
REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

LOG POND CAPPING CROSS-SECTIONS

C-13

SHEET NO. 48 OF 104

May 20, 2013 8:32pm dholmer \\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C CAPPING SHEETS.dwg C-13

LEGEND:

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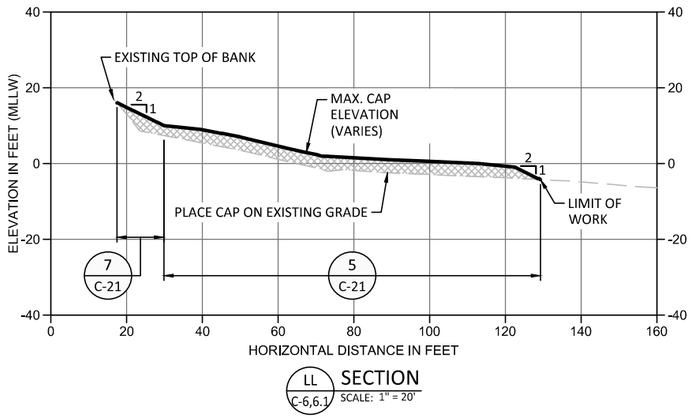

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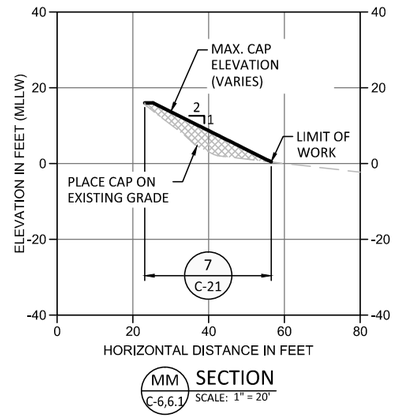

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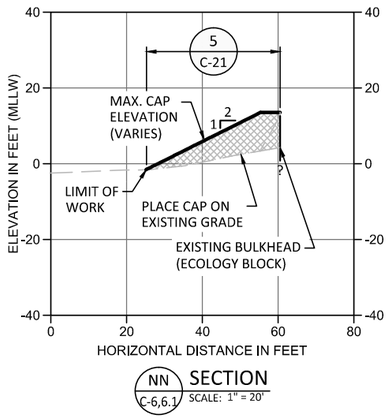

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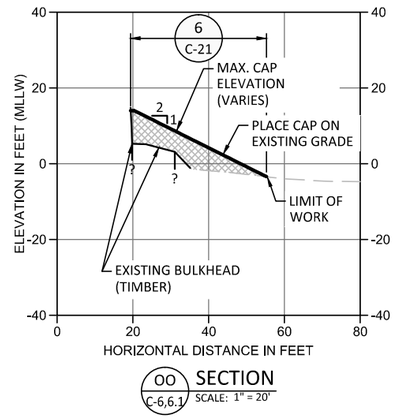

OO C-6,6.1 SECTION
SCALE: 1" = 20'

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FINAL BID DOCUMENT

PORT OF BELLINGHAM Washington State

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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

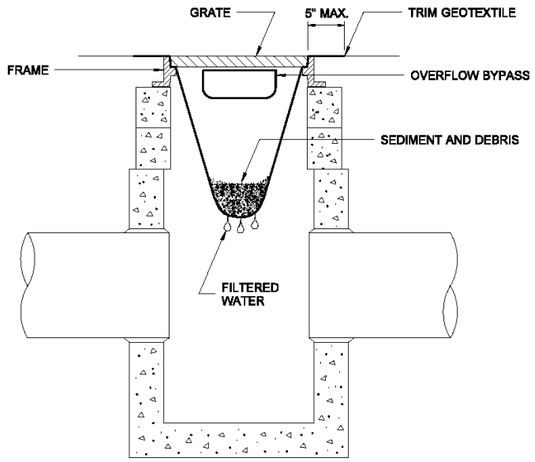
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

LOG POND CAPPING CROSS-SECTIONS

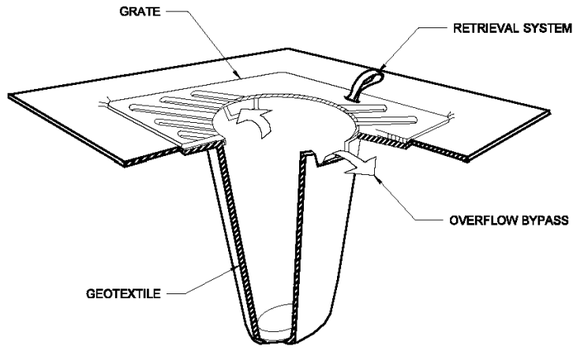
C-14

SHEET NO. 49 OF 104

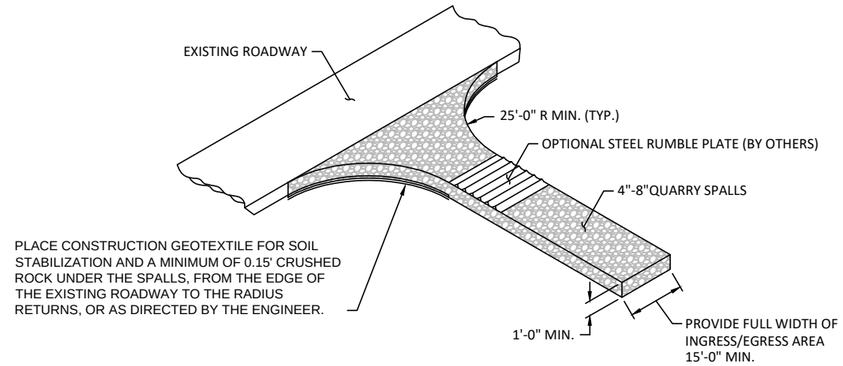
May 20, 2013 8:32pm dholmer \\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner WW\Construction Plans\0007-C CAPPING SHEETS.dwg C-14



CROSS SECTION
NOT TO SCALE



ISOMETRIC VIEW
NOT TO SCALE



- / C-8 DETAIL: STABILIZED ENTRANCE - TYP.
SCALE: NTS

NOTES ON CATCH BASIN INSERT:

1. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15)
2. SIZE THE BELOW GRATE INLET DEVICE (BGID) FOR THE STORM WATER STRUCTURE IT WILL SERVICE
3. THE BGID SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS)
4. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BGID SYSTEM WITHOUT SPILLING THE COLLECTED MATERIAL.

- / C-8 DETAIL: CATCH BASIN PROTECTION
SCALE: NTS

GENERAL NOTES:

1. EXAMPLES SHOWN ARE FOR CONTRACTOR INFORMATION ONLY AND INTENDED TO SHOW EXAMPLE BEST MANAGEMENT PRACTICES. DESIGN AND OPERATIONS OF STOCKPILE MANAGEMENT AND OFFLOADING OPERATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR. COMPLY WITH ALL CONTRACT DOCUMENTS, ENVIRONMENTAL MANAGEMENT PLAN, AND THE FEDERAL, STATE AND LOCAL PERMIT REQUIREMENTS FOR OFFLOAD FACILITY,AND STOCKPILING.
2. DRAWINGS SHOW POTENTIAL STAGING AND STOCKPILE AREA LOCATIONS ADJACENT TO THE WHATCOM WATERWAY. THE CONTRACTOR MUST COORDINATE DIRECTLY WITH THE PORT IF THEY DESIRE TO USE A DIFFERENT FACILITY.
3. STAGING AND STOCKPILE AREAS MUST, AT A MINIMUM, MEET THE REQUIREMENTS OF THE SPECIFICATIONS.
4. THE STAGING AND STOCKPILE AREA OPERATOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL PERMITS FOR FACILITY OPERATIONS, INCLUDING, BUT NOT LIMITED TO ALL STAGING AND STOCKPILE AREA STORMWATER AND DEWATERING DISCHARGES.
5. SEDIMENT SHALL NOT BE PLACED MORE THAN 4-FEET HIGH IMMEDIATELY AGAINST ECOLOGY BLOCK WALL.
6. DO NOT STACK SEDIMENT AT A SLOPE GREATER THAN 5H:1V ADJACENT TO ECOLOGY BLOCK WALL.
7. SPILLS THAT OCCUR DURING OFFLOADING AND TRANSFER SHALL DRAIN ONTO BARGE OR WITHIN A CONTAINED UPLAND AREA. SPILL PROTECTION SHALL BE CONSTRUCTED FROM IMPERMEABLE MATERIAL.
8. CLEAN TRANSLOAD FACILITY DAILY.
9. DETAILS SHOW SEDIMENT STACKED GREATER THAN 4 FEET HIGH FOR ILLUSTRATIVE PURPOSES ONLY. DEPICTION OF STACKED SEDIMENT DOES NOT INDICATE POTENTIAL WORKABILITY AND FLOW BEHAVIOR OF DREDGED MATERIAL, AND SHALL NOT BE USED BY THE CONTRACTOR AS BASIS FOR ANTICIPATING DREDGE MATERIAL CONDITIONS DURING THE WORK.
10. DETAILS SHOWN ARE FOR CONTRACTOR REFERENCE. DESIGN AND CONSTRUCTION OF CONTAINMENT SILT CURTAINS (IF NEEDED) AND OFFLOADING OPERATIONS TO BE PERFORMED BY CONTRACTOR.
11. TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) FEATURES SHALL BE INSTALLED TO PREVENT RUNOFF FROM THE DEWATERED SEDIMENT FROM ENTERING ADJACENT SURFACE WATER BODY. THE NEED FOR THESE FEATURES, AND THEIR LOCATION, SHALL BE DETERMINED DURING CONSTRUCTION, BASED ON THE ACTUAL LOCATION OF THE OFFLOADING AND TEMPORARY STOCKPILE AREAS.
12. TESC FEATURES SHALL BE USED BETWEEN ALL POTENTIAL SOURCES OF RUNOFF AND ADJACENT SURFACE WATER BODIES WHERE THE SURFACE WATER IS DOWNSLOPE OF THE OFFLOADING AND STAGING AND STOCKPILE AREAS.
13. TESC FEATURES SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER AND COMPLY WITH WSDOT HIGHWAY RUNOFF MANUAL, MARCH 2004 (OR EQUIVALENT), AVAILABLE AT: HTTP://WWW.WSDOT.WA.GOV/FASC/ENGINEERINGPUBLICATIONS/MANUALS/HIGHWAYRUNOFF2004.PDF
14. A STABILIZED ENTRANCE, SUCH AS THE DETAIL SHOWN, SHALL BE CONSTRUCTED, IF NECESSARY, TO PREVENT TRACKING OF SEDIMENT ONTO PUBLIC ROADWAYS AND TO PREVENT EROSION AND RUNOFF FROM ACCESS ROUTES.
15. CATCH BASIN INSERTS SHALL BE INSTALLED IN ALL CATCH BASINS IN VICINITY OF STAGING AND STOCKPILE AREA IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATION

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FINAL BID DOCUMENT

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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

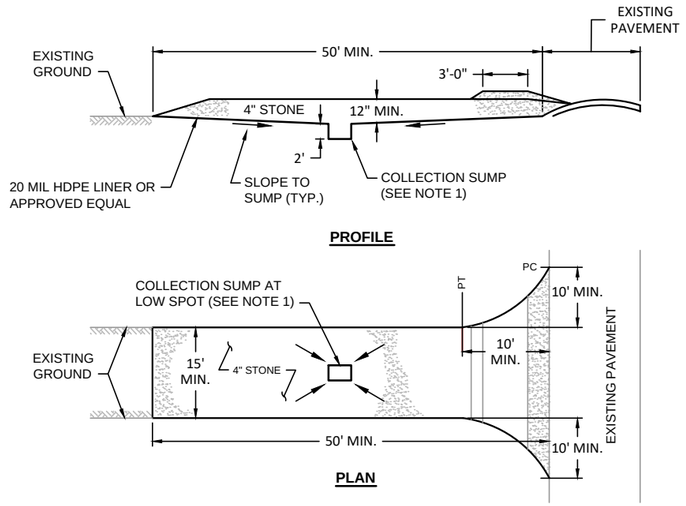
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

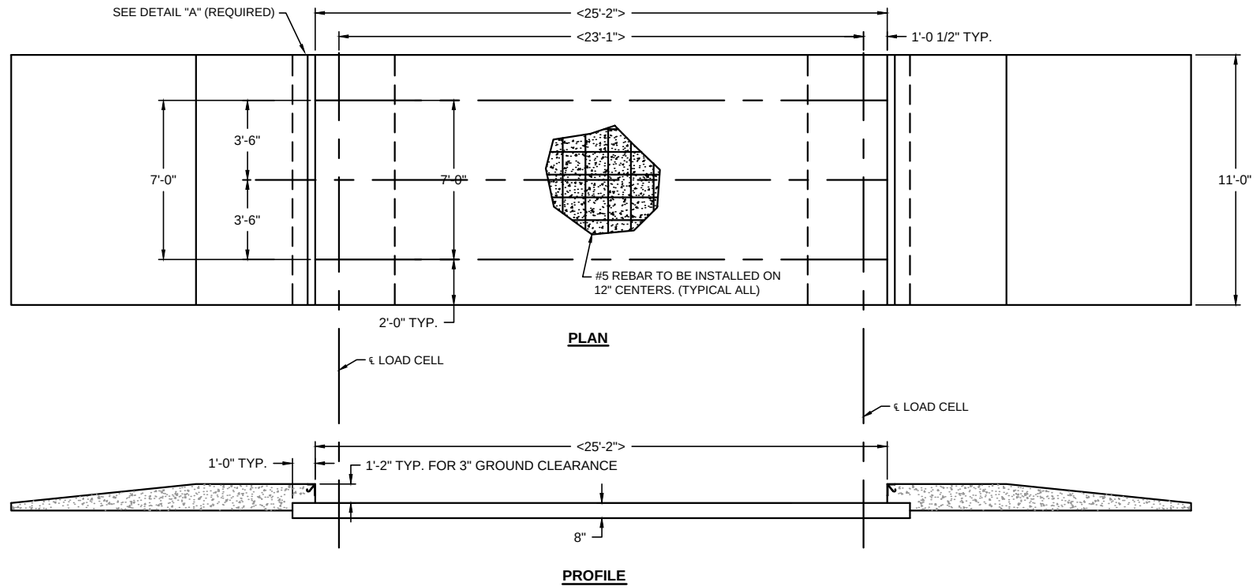
TESC DETAILS 1 OF 2

C-15

SHEET NO. 50 OF 104

May 20, 2013 8:32pm dholmer \\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner WtrA\Construction Plans\0007-C-CAPPING SHEETS.dwg C-15





TRUCK WASH STATION NOTES:

1. VEHICLES SHALL BE BRUSH CLEANED TO REMOVE SOIL/DEBRIS PRIOR TO EXITING. IF, AS DETERMINED BY THE ENGINEER, BRUSH CLEANING IS NOT EFFECTIVE IN DECONTAMINATING VEHICLES, THEN THE CONTRACTOR SHALL FLUID WASH THE VEHICLES. WASH STATION SHALL BE CONSTRUCTED WITH A 20 MIL HDPE LINER SYSTEM TO DRAIN TO 2' DEEP HDPE LINED COLLECTION SUMP. DECONTAMINATION WATER IN THE COLLECTION SUMP SHALL BE DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS.
2. THE TRUCK WASH STATION SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SOIL/DEBRIS ONTO ADJACENT PAVED AREAS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF THE COLLECTION SUMP. ALL SOIL/DEBRIS SPILLED, DROPPED, WASHED OR TRACKED ONTO ADJACENT PAVEMENT MUST BE REMOVED IMMEDIATELY.
3. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
4. STONE AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF AT AN APPROPRIATE DISPOSAL FACILITY AT THE CONCLUSION OF THE PROJECT.

- / C-8 DETAIL: TRUCK WASH STATION - TYP.
SCALE: NTS

NOTES:

1. WEIGH SCALE FOUNDATION IS SHOWN AS TYPICAL AND SHALL BE DETERMINED BY THE CONTRACTOR FOR ACCEPTANCE BY THE ENGINEER.
2. CHECK STATE REGULATIONS FOR APPROACH RAMP LENGTH (TYPICALLY 10' LEVEL. & 25' SLOPING)
3. THE FOUNDATION DESIGN (CONCRETE AND REBAR SPECIFICATIONS) SHOWN IS FOR A NATIONWIDE RANGE OF CONDITIONS AND MAY NEED MODIFICATION FOR LOCAL CONDITIONS.

- / C-8 DETAIL: WEIGH SCALE FOUNDATION- TYP.
SCALE: NTS

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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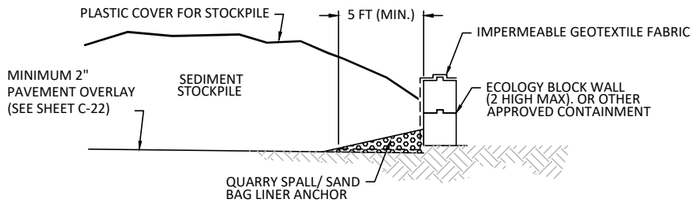
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

TESC DETAILS 2 OF 2

C-16

SHEET NO. 51 OF 104

May 20, 2013 8:32pm dholmer \\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner WtrA\Construction Plans\0007-C-CAPPING SHEETS.dwg C-16



STOCKPILE CONTAINMENT

1 / - DETAIL
SCALE: NOT TO SCALE

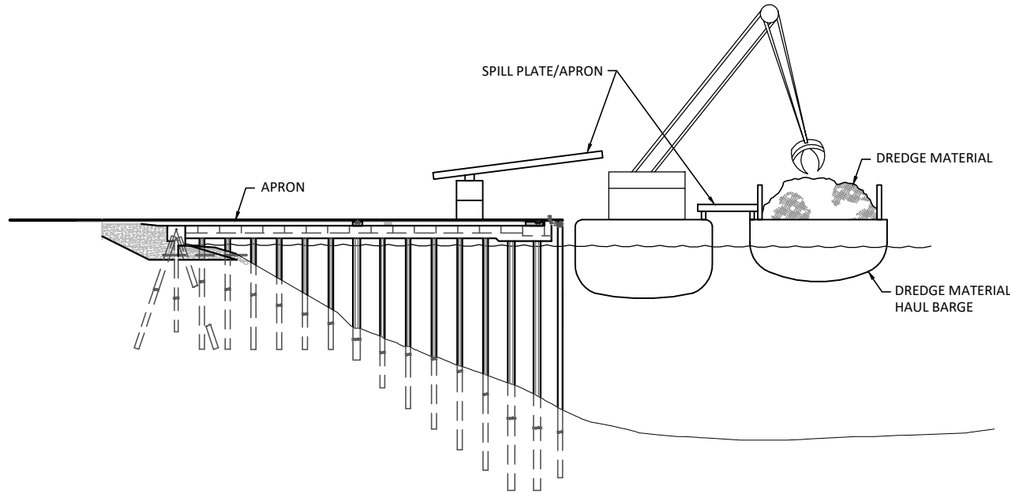
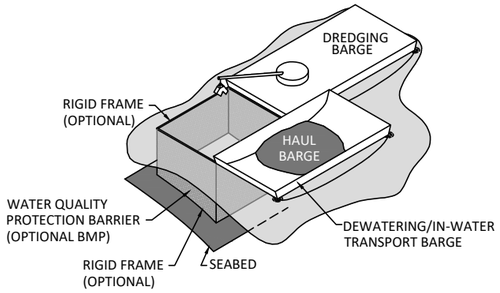


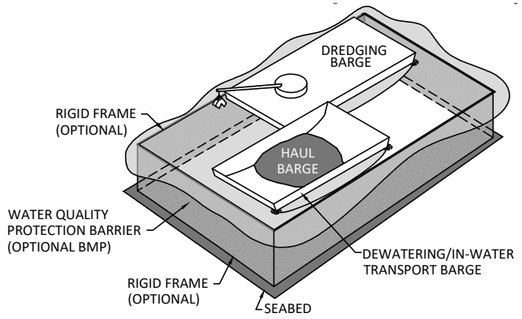
PHOTO 1: EXAMPLE OF OFFLOADING OPERATIONAL CONTROLS

PHOTO 2: EXAMPLE OF OFFLOADING OPERATIONAL CONTROLS



ISOMETRIC VIEW - CONCEPTUAL WATER QUALITY PROTECTION BARRIER ARRANGEMENTS

3 / - DETAIL
SCALE: NOT TO SCALE



ISOMETRIC VIEW - CONCEPTUAL WATER QUALITY PROTECTION BARRIER ARRANGEMENTS

4 / - DETAIL
SCALE: NOT TO SCALE

PHOTO 3: EXAMPLE OF OFFLOADING TO TRUCKS OPERATIONAL CONTROLS

OFFLOAD FROM HAUL BARGE

2 / - DETAIL
SCALE: NOT TO SCALE

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

PORT OF BELLINGHAM Washington State

ANCHOR QEA
720 OLIVE WAY, SUITE 1900 | SEATTLE, WA 98101
(206) 287-9130

kpff Consulting Engineers
101 Stewart Street, Suite 400
Seattle, Washington 98101
(206) 382–0600 Fax (206) 382–0500

MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

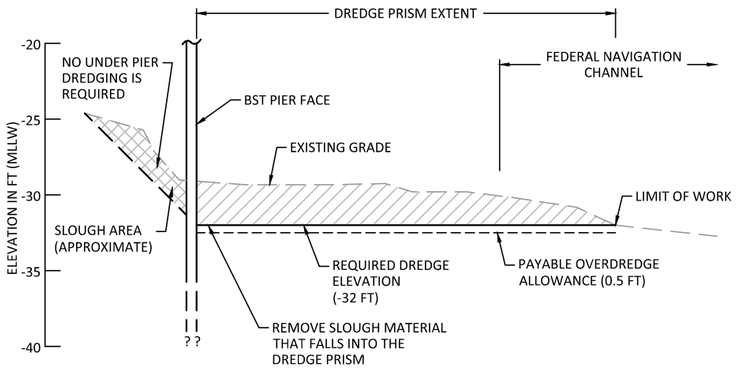
DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

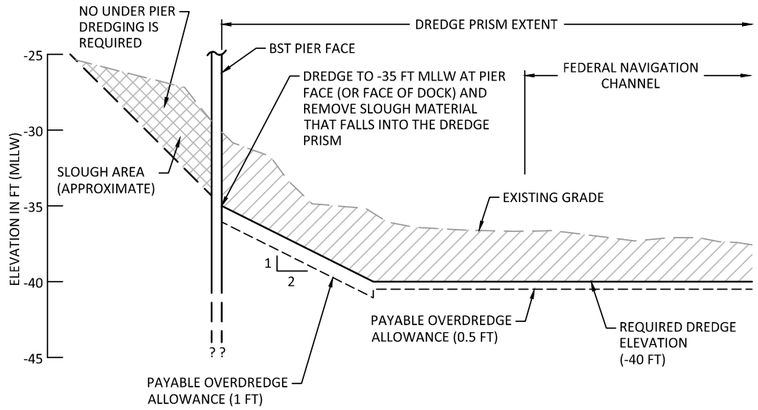
OFFLOADING AND ENVIRONMENTAL SEDIMENT MANAGEMENT DETAILS

C-17

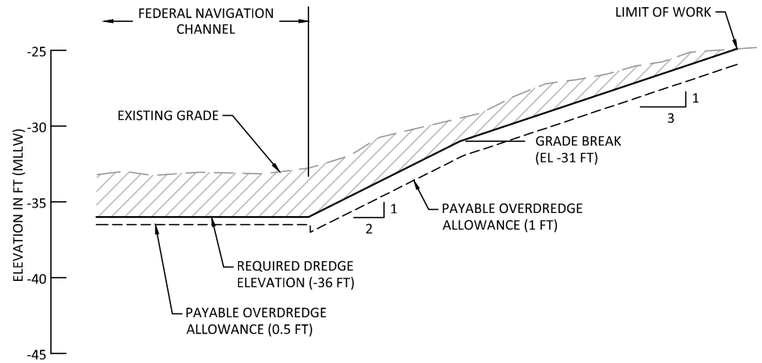
SHEET NO. 52 OF 104



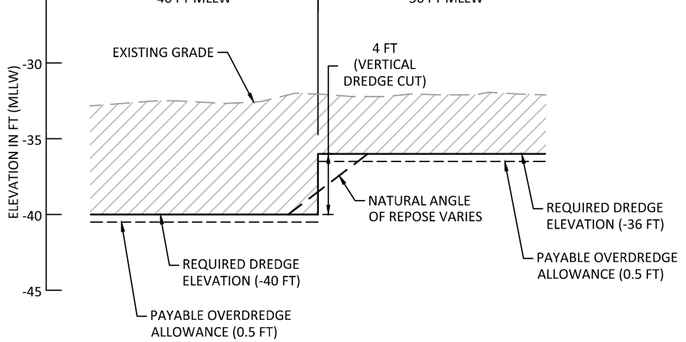
1 C-7 DETAIL: BST BERTH 2 DREDGING
SCALE: NTS



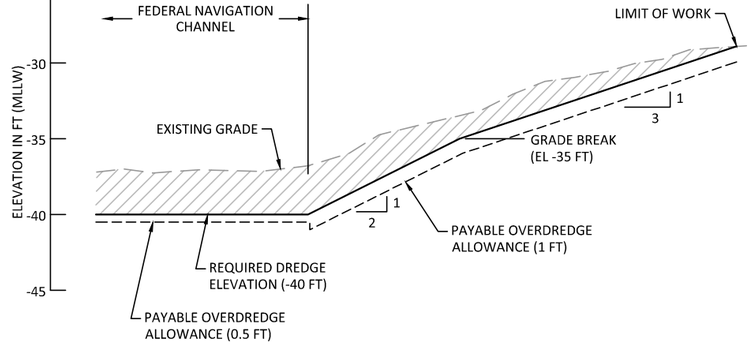
2 C-7, C-8 DETAIL: BST BERTH 1 DREDGING
SCALE: NTS



3 C-7 DETAIL: BST DREDGE SIDE SLOPE (NW SLOPE)
SCALE: NTS



4 C-7 DETAIL: BST DREDGE ELEVATION CHANGE
SCALE: NTS



5 C-8 DETAIL: BST DREDGE SIDE SLOPE (NW SLOPE)
SCALE: NTS

NOTES:

1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. PAYABLE OVERDREDGE ALLOWANCE ON SIDESLOPE AREAS WILL BE +1.0 FT. PAYABLE OVERDREDGE ALLOWANCE FOR ALL OTHER AREAS IS 0.5 FT UNLESS OTHERWISE NOTED ON DRAWINGS.
3. DO NOT PERFORM EXCESSIVE DREDGING AT TOE OF CUT OR IN SLOPE AREAS.
4. CONTRACTOR SHALL COMPLETE DREDGING ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
5. CONTRACTOR SHALL REMOVE SLOUGH MATERIAL (AS APPLICABLE) AT FACE OF DOCK AS PART OF REQUIRED DREDGING WORK. ANTICIPATED SLOUGH VOLUME IS INCLUDED IN THE BID ITEM FOR REQUIRED DREDGING.
6. NO UNDER-PIER DREDGING WILL BE PERFORMED.

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

PORT OF BELLINGHAM
Washington State

ANCHOR QEA
720 OLIVE WAY, SUITE 1900 | SEATTLE, WA 98101
(206) 287-9130

kpff Consulting Engineers
101 Stewart Street, Suite 400
Seattle, Washington 98101
(206) 382-0600 Fax (206) 382-0500

MATTHEW W WOLTMAN
STATE OF WASHINGTON
42344
REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

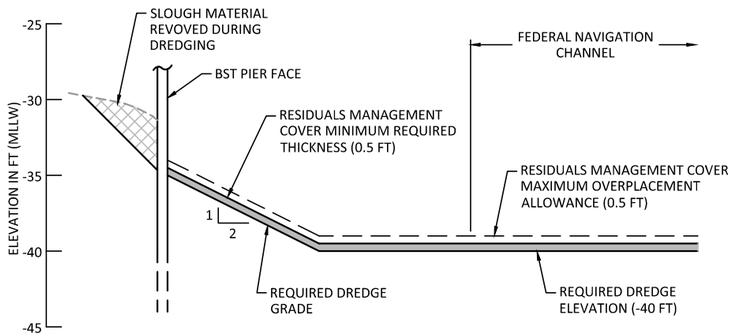
DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

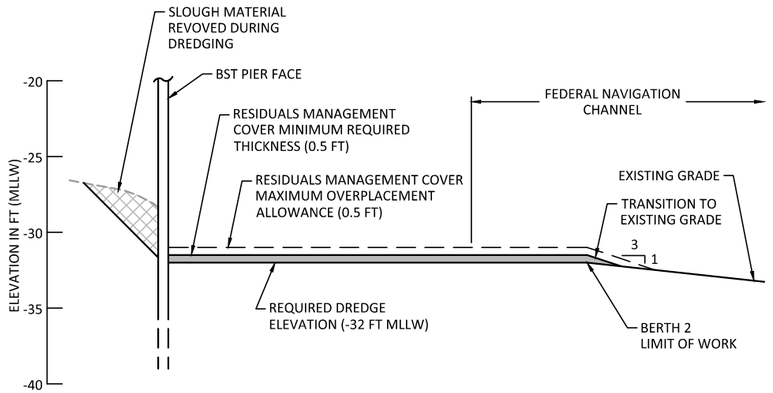
BST DREDGING DETAILS

C-18

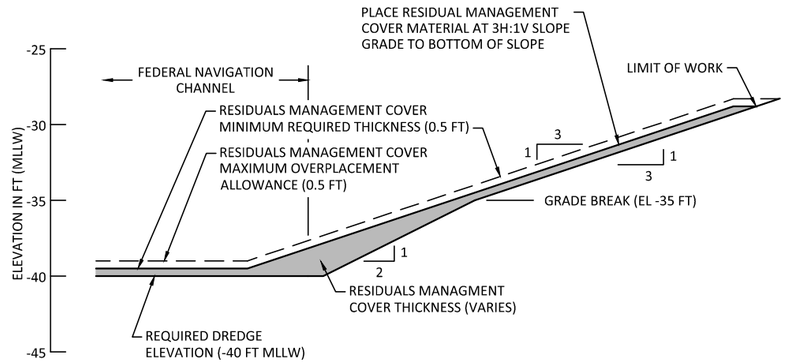
SHEET NO. 53 OF 104



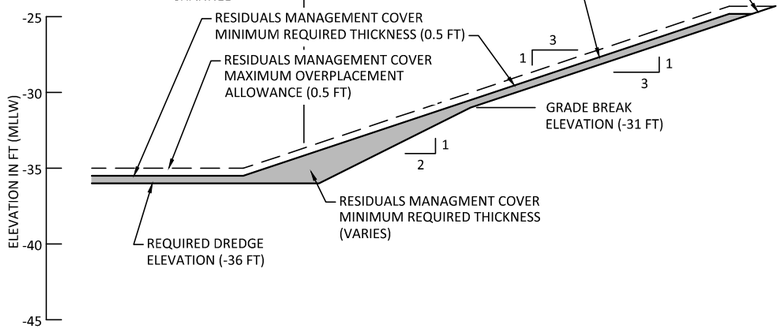
1 C-4,4.1 DETAIL: BST BERTH 1
SCALE: NTS



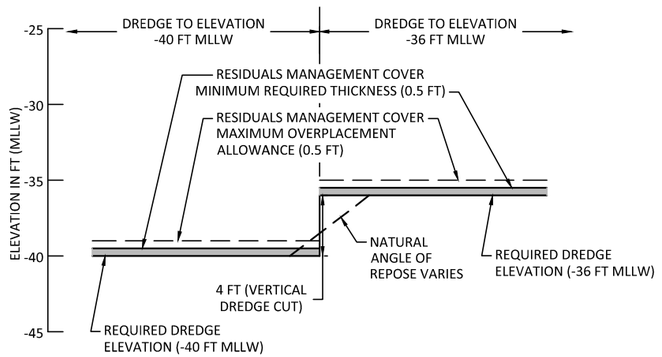
2 C-4,4.1 DETAIL: BST BERTH 2
SCALE: NTS



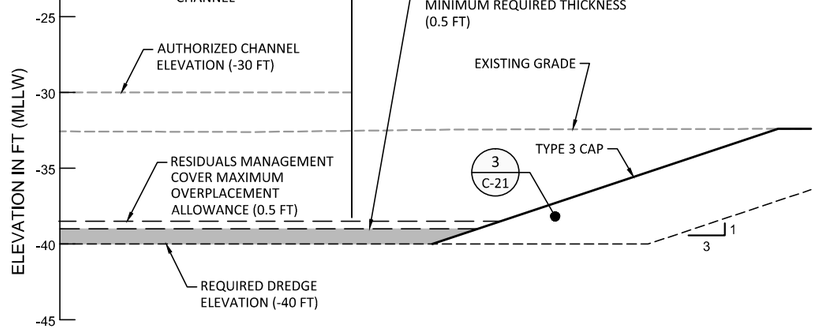
3 C-4,4.1 DETAIL: BST CLEAN COVER SLOPE DETAIL (NW SLOPE FOR -40 DREDGE PRISM)
SCALE: NTS



4 C-4,4.1 DETAIL: BST CLEAN COVER SLOPE DETAIL (NW SLOPE FOR -36 DREDGE PRISM)
SCALE: NTS



5 C-4,4.1 DETAIL: BST ELEVATION CHANGE WITHIN DREDGE PRISM
SCALE: NTS



PP C-4,4.1 SECTION: BST TRANSITION SLOPE CAP (TYPE I)
SCALE: NTS

NOTES:

1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. REFERENCE SHEET C-4 FOR PLAN VIEW OF RMC LOCATIONS.
3. RMC MATERIAL SHALL NOT BE PLACED ABOVE THE IN-WATER TOP OF SLOPE RESTRICTED ELEVATIONS.
4. CONTRACTOR SHALL COMPLETE RMC ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
5. REFERENCE SHEET C-4 FOR PLAN VIEW OF LOCATIONS FOR PLACEMENT OF RESIDUA MANAGEMENT COVER MATERIAL.
6. TOP OF RMC IN SECTIONS REPRESENT THE MAXIMUM ELEVATION FOR RMC PLACEMENT PER THE CONTRACT REQUIREMENTS. MINIMUM RMC THICKNESS REQUIREMENTS AND OVERPLACEMENT ALLOWANCES ARE PRESENTED IN THE SPECIFICATIONS.
7. NO UNDER-PIER PLACEMENT OF RMC MATERIAL WILL BE PERFORMED AS PART OF THIS CONTRACT.

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

PORT OF BELLINGHAM Washington State

ANCHOR QEA
720 OLIVE WAY, SUITE 1900 | SEATTLE, WA 98101
(206) 287-9130

kpff Consulting Engineers
101 Stewart Street, Suite 400
Seattle, Washington 98101
(206) 382-0600 Fax (206) 382-0500

MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

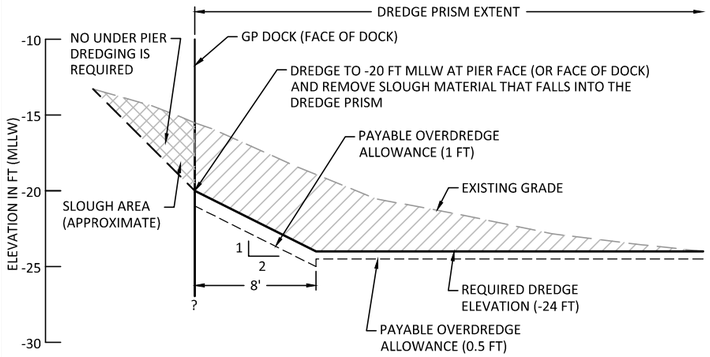
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

BST RESIDUALS MANAGEMENT COVER PLACEMENT SECTIONS AND DETAILS

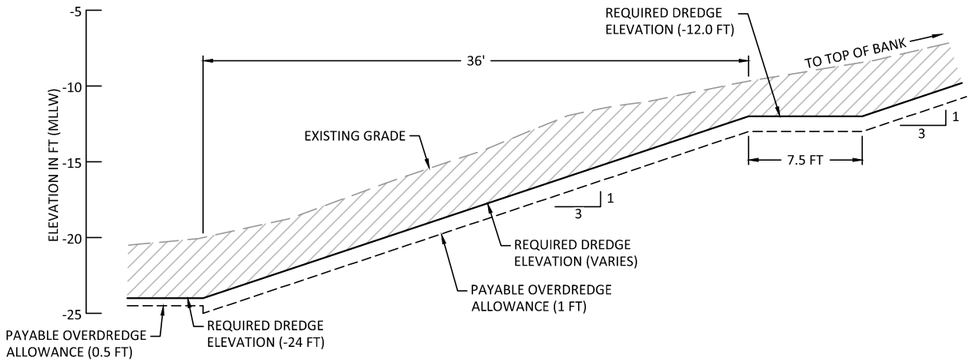
C-19

SHEET NO. 54 OF 104

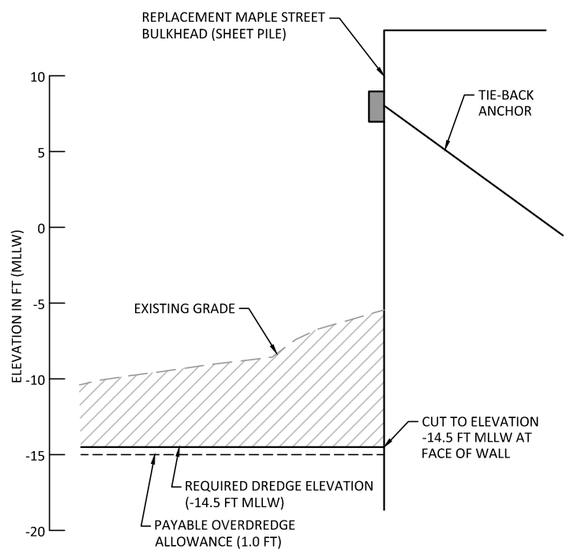
May 20, 2013 8:33pm dholmer
\\Tacoma\1Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C SHEETS.dwg C-19



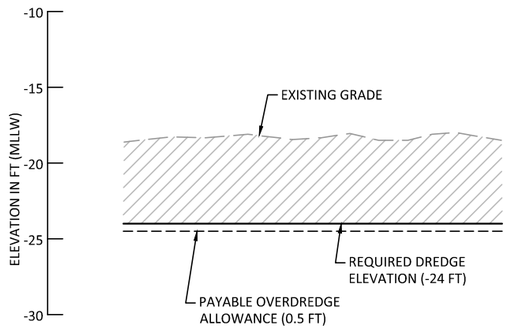
1 C-9 DETAIL: INNER WATERWAY GP DOCK AREA
SCALE: NTS



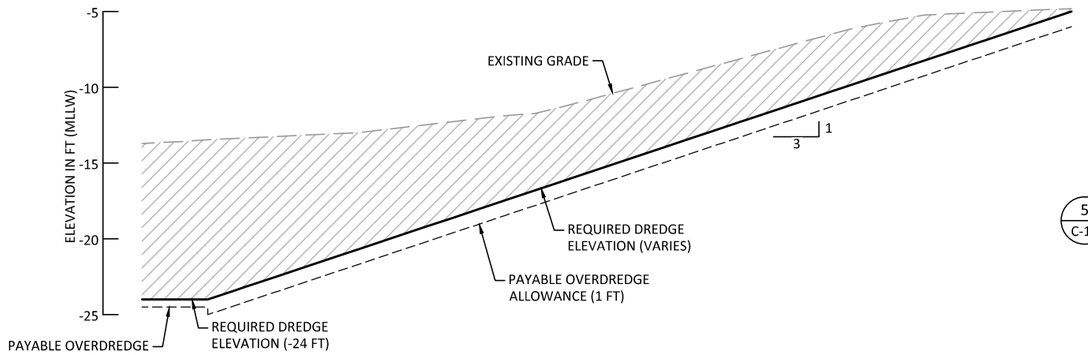
3 C-9 DETAIL: INNER WATERWAY SHORELINE SLOPE AREAS
SCALE: NTS



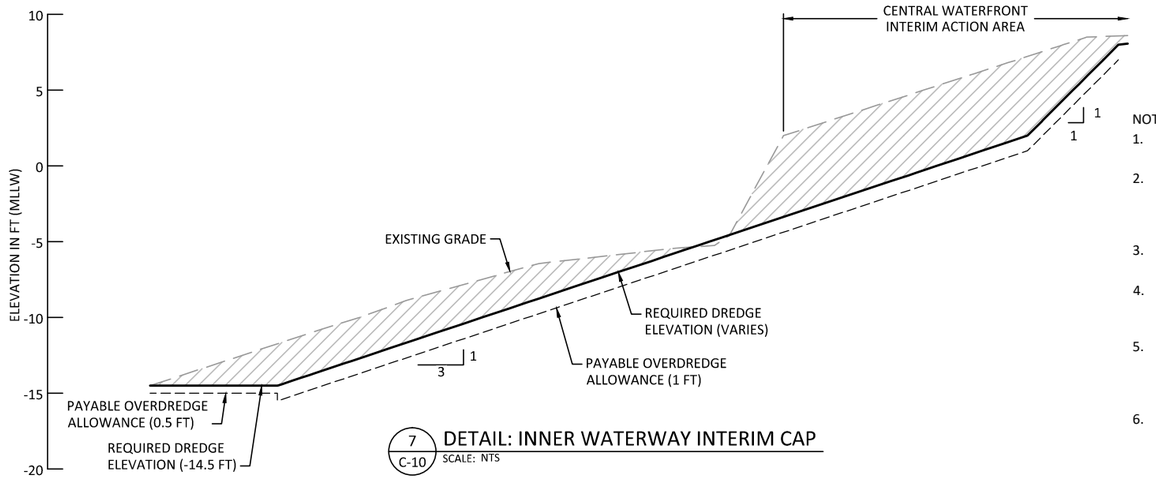
5 C-10 DETAIL: INNER WATERWAY MAPLE STREET REPLACEMENT WALL
SCALE: NTS



2 C-9, C-10 DETAIL: INNER WATERWAY OPEN WATER AREA
SCALE: NTS



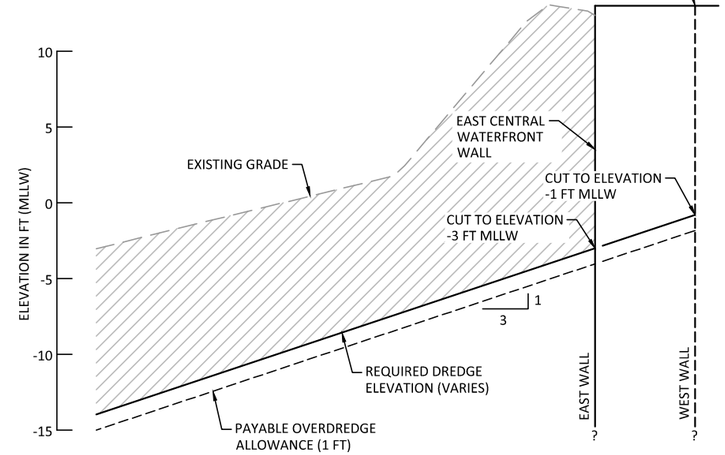
4 C-9 DETAIL: INNER WATERWAY
SCALE: NTS



7 C-10 DETAIL: INNER WATERWAY INTERIM CAP
SCALE: NTS

NOTES:

1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. PAYABLE OVERDREDGE ALLOWANCE ON SIDESLOPE AREAS WILL BE +1.0 FT. PAYABLE OVERDREDGE ALLOWANCE FOR ALL OTHER AREAS IS +0.5 FT UNLESS OTHERWISE NOTED ON DRAWINGS.
3. DO NOT PERFORM EXCESSIVE DREDGING AT TOE OF CUT OR IN SLOPE AREAS.
4. CONTRACTOR SHALL COMPLETE DREDGING ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
5. CONTRACTOR SHALL REMOVE SLOUGH MATERIAL (AS APPLICABLE) AT FACE OF DOCK AS PART OF REQUIRED DREDGING WORK. ANTICIPATED SLOUGH VOLUME IS INCLUDED IN THE BID ITEM FOR REQUIRED DREDGING.
6. NO UNDER-PIER DREDGING WILL BE PERFORMED.



6 C-10 DETAIL: INNER WATERWAY EAST AND WEST CENTRAL WATERFRONT WALL
SCALE: NTS

FINAL BID DOCUMENT

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

PORT OF BELLINGHAM Washington State

ANCHOR QEA
720 OLIVE WAY, SUITE 1900 | SEATTLE, WA 98101
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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

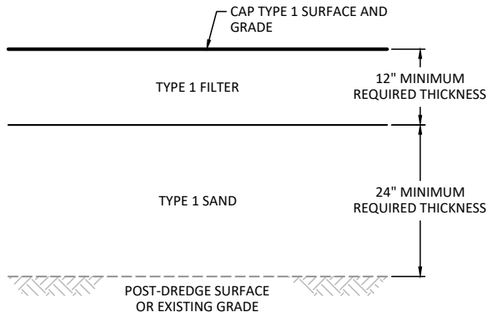
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

INNER WATERWAY DREDGING DETAILS

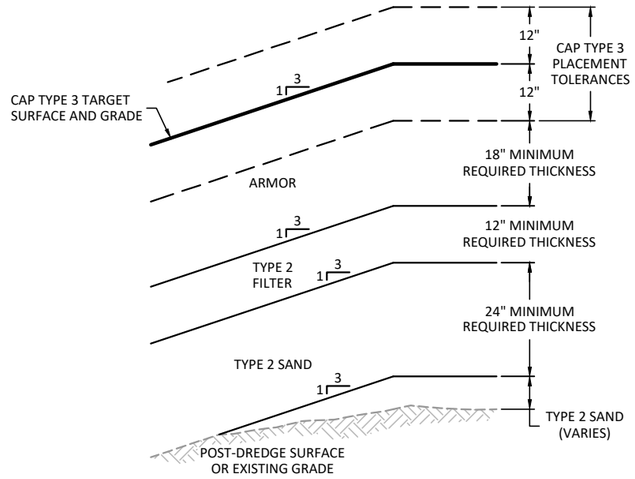
C-20

SHEET NO. 55 OF 104

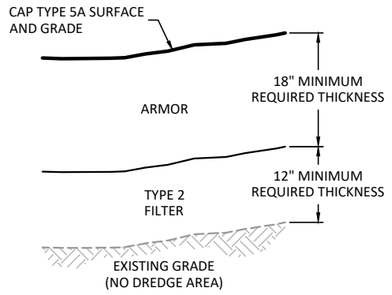
May 20, 2013 8:33pm dholmer \\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C SHEETS.dwg C-20



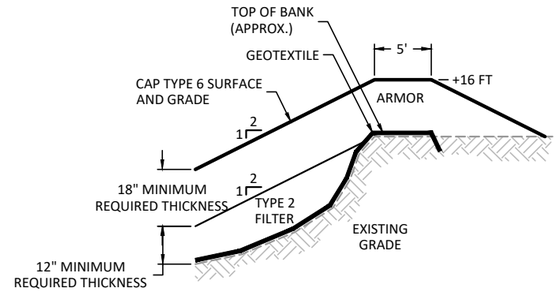
1 C-11,12 **DETAIL: CAP TYPE 1**
SCALE: NTS



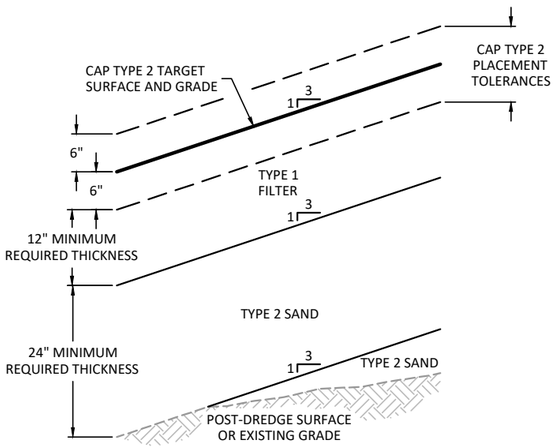
3 C-11,12,13 **DETAIL: CAP TYPE 3**
SCALE: NTS



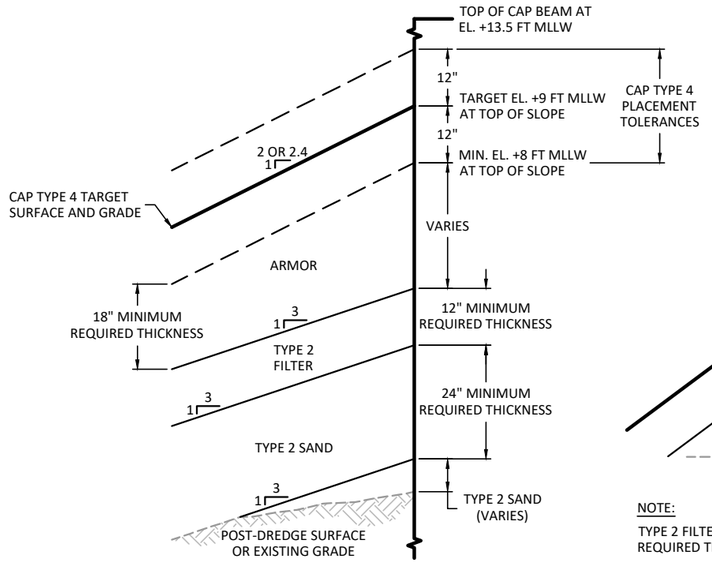
5 C-13,14 **DETAIL: CAP TYPE 5A**
SCALE: NTS



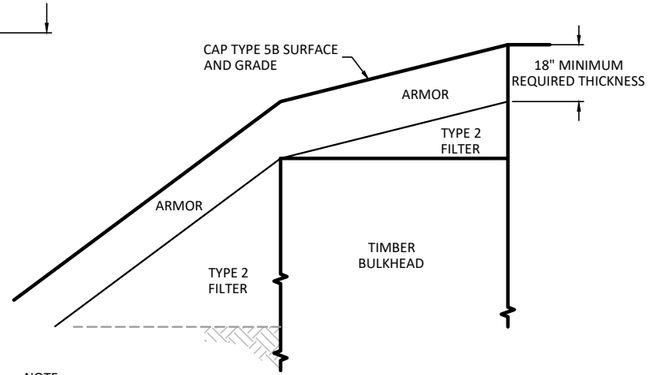
7 C-13,14 **DETAIL: CAP TYPE 6**
SCALE: NTS



2 C-11-12 **DETAIL: CAP TYPE 2**
SCALE: NTS



4 C-11,12 **DETAIL: CAP TYPE 4**
SCALE: NTS



NOTE:
TYPE 2 FILTER MATERIAL MINIMUM REQUIRED THICKNESS IS 12 INCHES.

6 C-13,14 **DETAIL: CAP TYPE 5B**
SCALE: NTS

NOTES:

1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. REFERENCE SHEET C-4.1, C-5.1, AND C-6.1 FOR PLAN VIEW OF LOCATIONS FOR EACH CAP TYPE.
3. CAP MATERIAL SHALL NOT BE PLACED ABOVE THE RESTRICTED ELEVATIONS.
4. CONTRACTOR SHALL COMPLETE CAPPING ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATION.
5. NO UNDER-PIER PLACEMENT OF CAP MATERIAL WILL BE PERFORMED AS PART OF THIS CONTRACT.
6. CONTRACTOR SHALL COMPLETE FIELD MEASUREMENTS TO VERIFY TIMBER BULKHEAD ELEVATIONS WILL NOT PROTRUDE INTO ARMOR LAYER. CONTRACTOR TO NOTIFY ENGINEER FOR CLARIFICATION.

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

PORT OF BELLINGHAM
Washington State

ANCHOR QEA
720 OLIVE WAY, SUITE 1900 | SEATTLE, WA 98101
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(206) 382-0600 Fax (206) 382-0500

MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV.	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

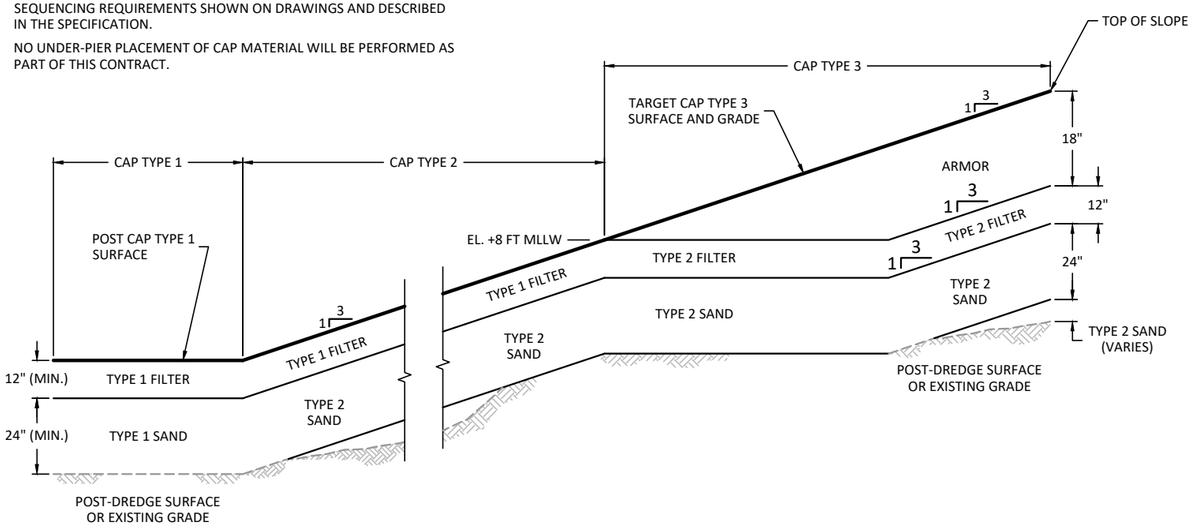
CAPPING DETAILS

C-21

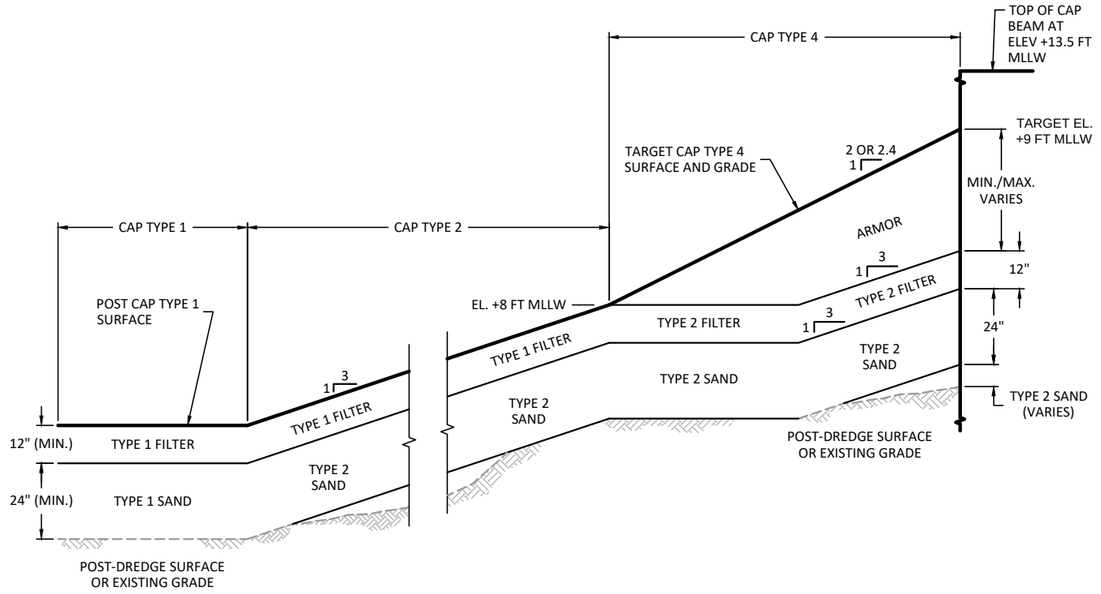
SHEET NO. 56 OF 104

NOTES:

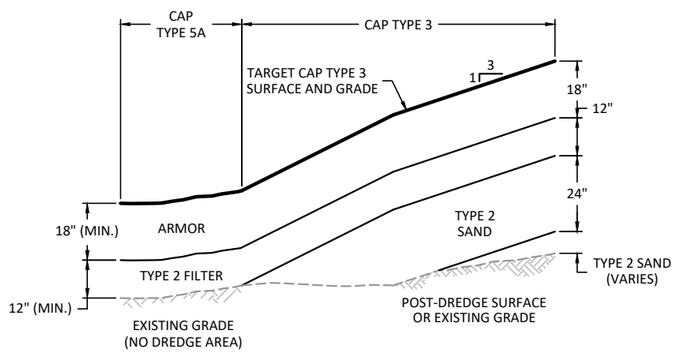
1. REFERENCE SHEET G-2 FOR SURVEY AND DATUM INFORMATION.
2. REFERENCE SHEET C-4.1, C-5.1, AND C-6.1 FOR PLAN VIEW OF LOCATIONS FOR EACH CAP TYPE.
3. CAP MATERIAL SHALL NOT BE PLACED ABOVE THE RESTRICTED ELEVATIONS.
4. CONTRACTOR SHALL COMPLETE CAPPING ACTIVITIES ACCORDING TO SEQUENCING REQUIREMENTS SHOWN ON DRAWINGS AND DESCRIBED IN THE SPECIFICATION.
5. NO UNDER-PIER PLACEMENT OF CAP MATERIAL WILL BE PERFORMED AS PART OF THIS CONTRACT.



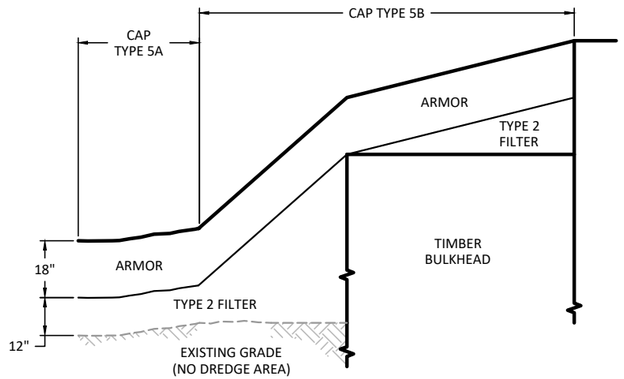
1 DETAIL: CAP TYPE 1 TO TYPE 2 TO TYPE 3
SCALE: NTS



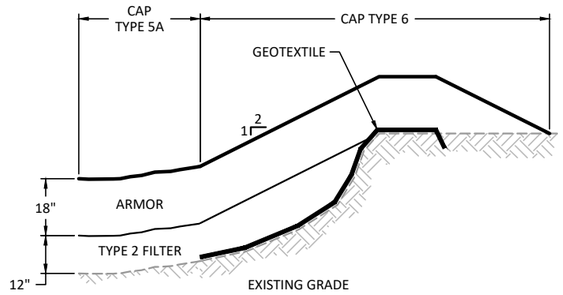
2 DETAIL: CAP TYPE 1 TO TYPE 2 TO TYPE 4
SCALE: NTS



3 DETAIL: CAP TYPE 5A TO TYPE 3
SCALE: NTS



4 DETAIL: CAP TYPE 5A TO TYPE 5B
SCALE: NTS



5 DETAIL: CAP TYPE 5A TO TYPE 6
SCALE: NTS

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MATTHEW W WOLTMAN — STATE OF WASHINGTON — 42344 — REGISTERED PROFESSIONAL ENGINEER
5/20/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. WOLTMAN
DRAWN BY: D. HOLMER
CHECKED BY: T. WANG
APPROVED BY: T. WANG
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

CAPPING TRANSITION DETAILS

C-22

SHEET NO. 57 OF 104

May 20, 2013 8:33pm dholmer \\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner WtrA\Construction Plans\0007-C CAPPING SHEETS.dwg C-22

SEE DRAWING C-2

CONTROL POINTS		
POINT #	NORTHING	EASTING
D-1	641275.68	1239507.23
D-2	641413.91	1239651.80
D-3	641635.04	1239883.09
D-4	641404.54	1240106.68
D-5	641042.49	1239733.43
D-6	641184.97	1239595.22
D-7	641324.18	1239738.83
D-8	640629.70	1239307.95
D-9	640615.47	1239322.20

SEE DRAWING C-3

CONTROL POINTS		
POINT #	NORTHING	EASTING
D-10	643284.25	1241631.94
D-11	643114.13	1241796.95
D-12	642856.84	1241531.70
D-13	642779.63	1241530.52
D-14	642500.66	1241242.92
D-15	642500.74	1241237.90
D-16	642741.55	1240978.21
D-17	642792.88	1240964.35
D-18	642786.17	1240919.88
D-19	642833.13	1240904.40
D-20	642857.95	1240914.24
D-21	642797.63	1240964.93
D-22	642863.51	1241032.85
D-23	642857.99	1241039.89
D-24	643089.00	1241279.03
D-25	643089.13	1241336.55
D-26	643187.81	1241438.28
D-27	643237.05	1241440.78
D-28	643318.17	1241523.44
D-29	643269.69	1241522.70

SEE DRAWING C-3

CONTROL POINTS		
POINT #	NORTHING	EASTING
D-30	643243.05	1241548.54
D-31	643259.04	1241543.48
D-32	643253.66	1241548.70
D-33	642975.87	1241706.12
D-34	642945.15	1241685.22
D-35	642818.97	1241675.63
D-36	643017.73	1241880.79
D-37	643064.23	1241833.93
D-38	642819.24	1241658.41
D-39	642873.27	1241636.82
D-40	642575.27	1240901.03

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\\Tacoma1\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C SHEETS.dwg C-23
May 20, 2013 8:33pm dholmer

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WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

DREDGING CONTROL POINT TABLES

C-23

SHEET NO. 58 OF 104

SEE DRAWING C-4, C-4.1

CONTROL POINTS		
POINT #	NORTHING	EASTING
C-1	640629.89	1239307.85
C-2	640615.47	1239322.20
C-3	641031.33	1239710.81
C-4	641042.63	1239733.43
C-5	641184.97	1239595.22
C-6	641275.68	1239507.23
C-7	641413.91	1239651.80
C-8	641634.90	1239883.09
C-9	641404.54	1240106.54
C-10	641324.18	1239738.82

SEE DRAWING C-5, C-5.1

CONTROL POINTS		
POINT #	NORTHING	EASTING
C-11	642485.00	1241238.27
C-12	642575.27	1240901.03
C-13	643027.69	1241367.44
C-14	643027.53	1241378.05
C-15	643144.42	1241498.56
C-16	643155.03	1241498.72
C-17	643284.25	1241631.94
C-18	643114.13	1241796.95
C-19	642856.84	1241531.70
C-20	642768.31	1241530.35
C-21	642810.46	1241639.00
C-22	643082.77	1241816.32
C-23	643193.06	1241967.05
C-24	643144.13	1242014.33
C-25	643135.88	1242022.31
C-26	642902.25	1241143.89
C-27	643090.39	1241337.85
C-28	643186.52	1241436.95
C-29	643269.69	1241522.70
C-30	643248.44	1241543.31

SEE DRAWING C-5, C-5.1

CONTROL POINTS		
POINT #	NORTHING	EASTING
C-31	643170.48	1241462.95
C-32	643159.88	1241462.79
C-33	643063.75	1241363.69
C-34	643064.17	1241336.69
C-35	642878.59	1240831.85
C-36	642818.97	1241675.63
C-37	642819.24	1241658.41
C-38	643031.09	1241866.46
C-39	643017.04	1241880.07
C-40	642857.76	1241039.66
C-41	643089.74	1241278.81
C-42	643237.30	1241440.06
C-43	643322.50	1241527.90
C-44	643355.17	1241584.42
C-45	642849.25	1241030.88
C-46	642870.90	1241023.42
C-47	642856.65	1241016.32
C-48	642814.13	1240975.45
C-49	642796.19	1240979.43
C-50	642807.98	1240965.37

SEE DRAWING C-5, C-5.1

CONTROL POINTS		
POINT #	NORTHING	EASTING
C-51	642850.36	1240955.27
C-52	642801.49	1240962.92
C-53	642837.38	1240953.57
C-54	642834.06	1240910.09
C-55	642797.61	1240912.17

SEE DRAWING C-6, C-6.1

CONTROL POINTS		
POINT #	NORTHING	EASTING
C-56	641344.54	1240234.01
C-57	641223.13	1240350.25
C-58	641222.40	1240548.28
C-59	641372.74	1240223.94
C-60	641369.49	1240259.85
C-61	641306.59	1240324.18
C-62	641242.41	1240363.11
C-63	641268.21	1240450.00
C-64	641236.81	1240540.45
C-65	641289.50	1240608.25
C-66	641302.76	1240338.04
C-67	641294.51	1240330.68
C-68	641338.72	1240421.87
C-69	641349.96	1240450.00
C-70	641348.81	1240488.10
C-71	641325.08	1240613.14
C-72	641354.20	1240658.97
C-73	641430.55	1240734.03
C-74	641484.75	1240743.97

SEE DRAWING C-6, C-6.1

CONTROL POINTS		
POINT #	NORTHING	EASTING
C-75	641623.26	1240646.35
C-76	641725.32	1240764.44
C-77	641548.81	1240692.11
C-78	641705.15	1240704.40
C-79	641789.79	1240819.28
C-80	641826.74	1240842.96
C-81	642005.32	1240996.78
C-82	641948.61	1240948.80
C-83	641875.57	1240885.33
C-84	641913.14	1240936.55
C-85	642061.12	1240941.97
C-86	642085.84	1240955.67
C-87	641413.30	1240764.24
C-88	641496.86	1240796.49
C-89	641547.12	1240770.55
C-90	641588.11	1240752.94
C-91	641638.64	1240742.13
C-92	641685.07	1240751.43

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SCALE: AS NOTED
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WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

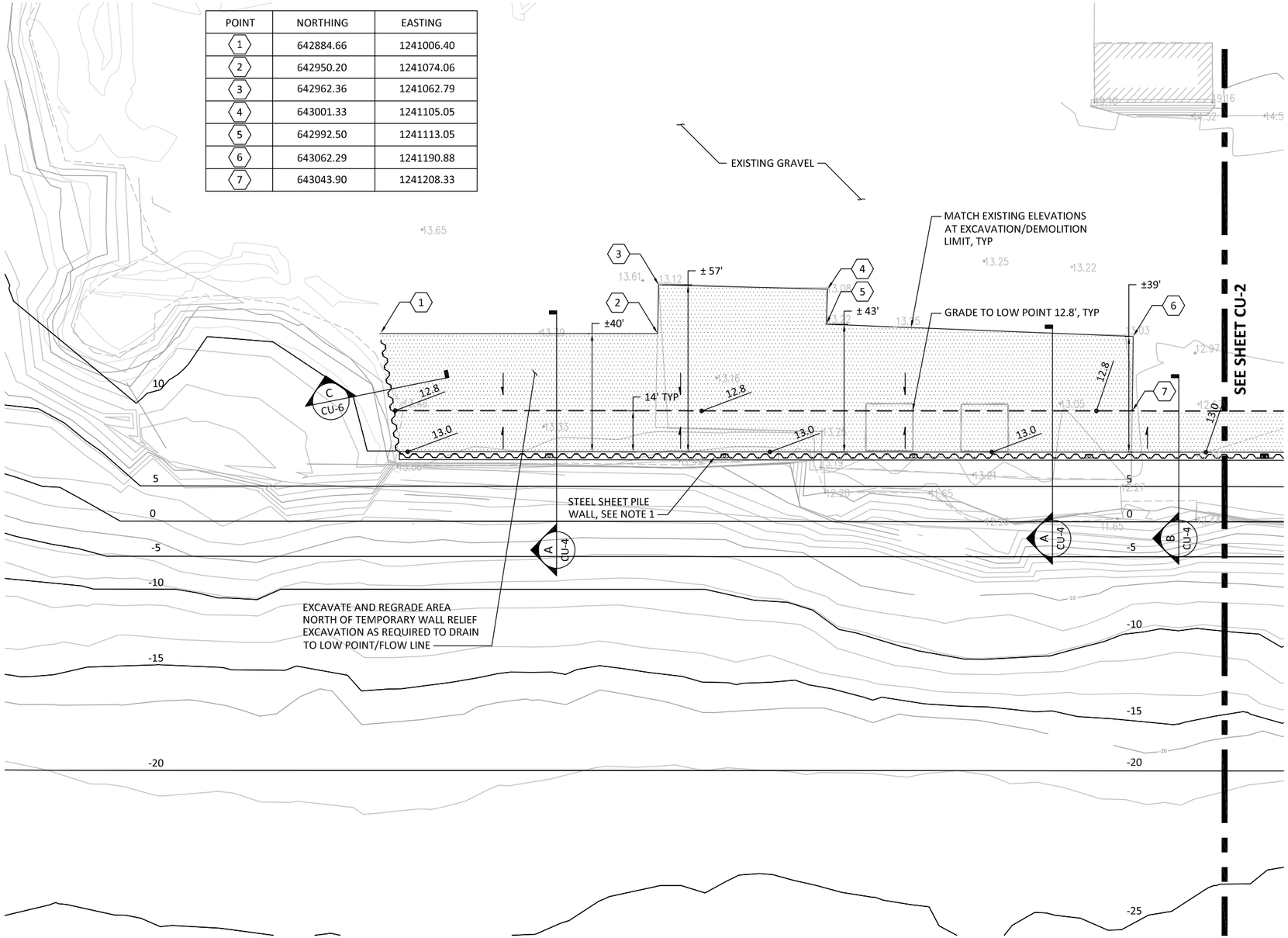
CAPPING CONTROL POINT TABLES

C-24

SHEET NO. 59 OF 104

May 20, 2013 8:33pm dholmer \\Tacoma\Tacoma\CAD\Projects\0007-Port of Bellingham\Whatcom Waterway Cleanup Inner Wtr\Construction Plans\0007-C CAPPING SHEETS.dwg C-24

POINT	NORTHING	EASTING
1	642884.66	1241006.40
2	642950.20	1241074.06
3	642962.36	1241062.79
4	643001.33	1241105.05
5	642992.50	1241113.05
6	643062.29	1241190.88
7	643043.90	1241208.33



WEST CENTRAL WALL PAVING AND GRADING PLAN

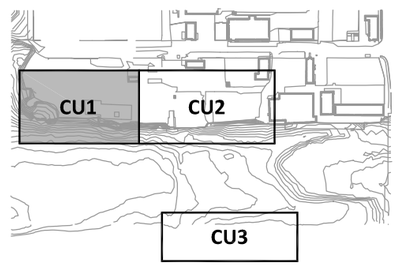
SCALE: 1"=20'

LEGEND:

- 6" GRAVEL BALLAST
- 10 — FINISHED CAPPED SLOPE, SEE C-SHEETS
- EXISTING CONTOUR
- 12.6 — FINISHED GRADE SPOT ELEVATION (MLLW)
- FINISH SURFACE SLOPE DIRECTION
- 12.97 — EXISTING SURFACE SPOT ELEVATION (MLLW)
- FLOW LINE / APPROXIMATE TEMPORARY WALL RELIEF EXCAVATION LIMITS, SEE NOTE 4
- SHEET PILE WALL, SEE NOTES 1 AND 2

NOTES:

1. SEE STRUCTURAL SHEETS FOR ADDITIONAL SHEET PILE WALL DETAILS AND TOP OF PILE CAP ELEVATION.
2. SEE STRUCTURAL SHEETS FOR BULKHEAD CONTROL POINTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE SIZE AND LOCATION OF ALL EXISTING ABOVE GRADE AND UNDERGROUND UTILITIES.CARE SHOULD BE TAKEN TO AVOID DAMAGE OR DISTURBANCE TO UTILITIES.
4. TEMPORARY WALL RELIEF EXCAVATION SHALL BE PERFORMED PRIOR TO DREDGING ADJACENT TO WALL, SEE STRUCTURAL SHEETS FOR MAXIMUM UNBALANCED HEIGHT REQUIREMENTS. AFTER WALL CONSTRUCTION AND CAPPING IS COMPLETE CONTRACTOR SHALL PLACE STRUCTURAL FILL AND BALLAST.



KEY PLAN

NORTH

PROJECT NORTH

0 20 40

SCALE IN FEET

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DONALD L. OAKES STATE OF WASHINGTON 29694 REGISTERED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: SJS
DRAWN BY: KMV
CHECKED BY: MDK
APPROVED BY: DLO
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

WEST CENTRAL WALL PAVING AND GRADING PLAN

CU-1

SHEET NO. 60 OF 104

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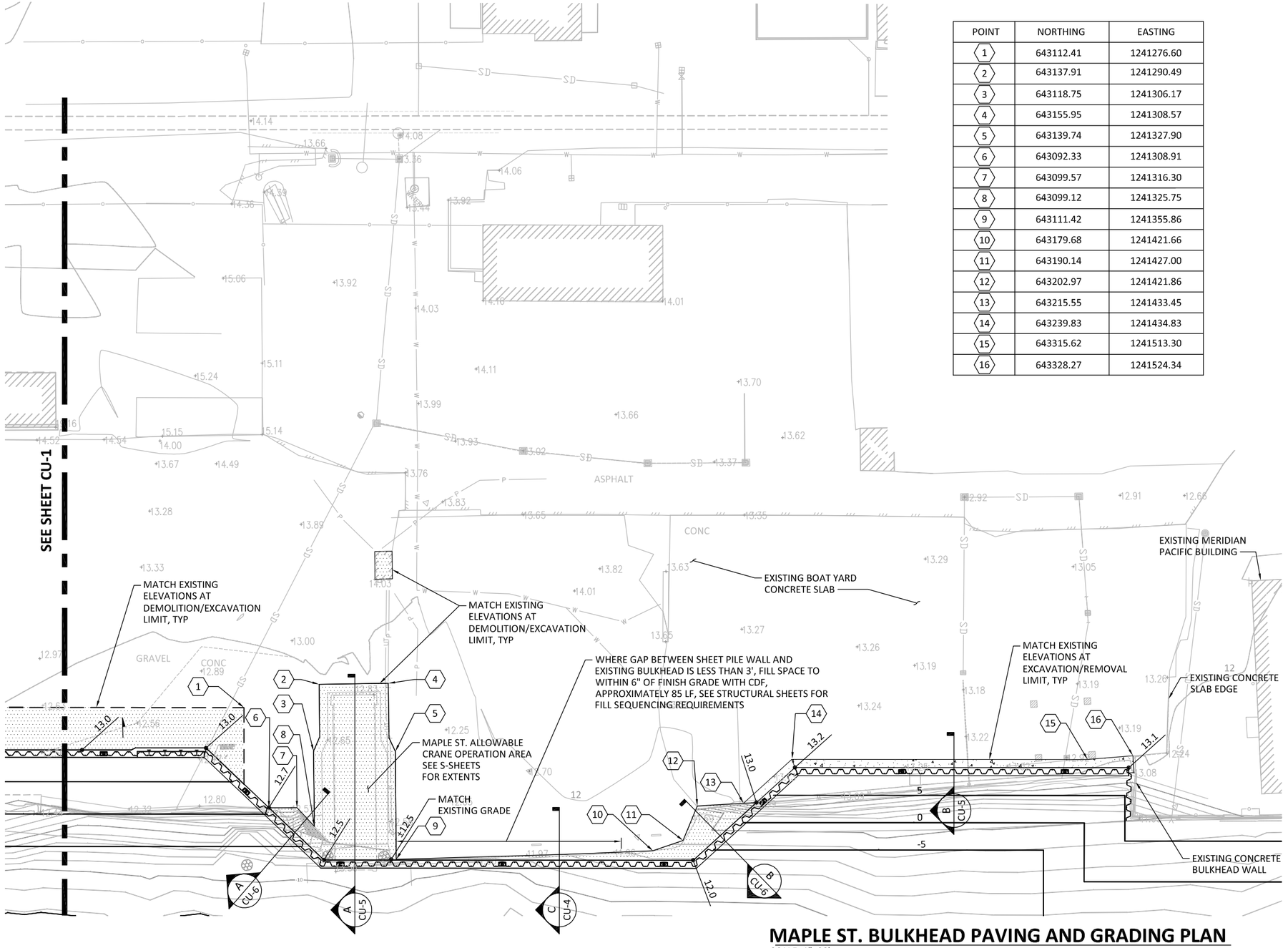
May 13, 2013 11:09am gcarey



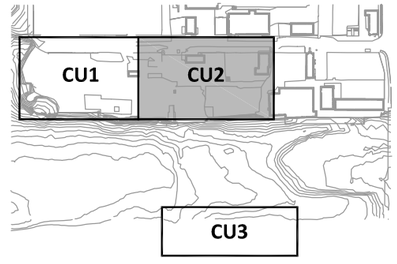
POINT	NORTHING	EASTING
1	643112.41	1241276.60
2	643137.91	1241290.49
3	643118.75	1241306.17
4	643155.95	1241308.57
5	643139.74	1241327.90
6	643092.33	1241308.91
7	643099.57	1241316.30
8	643099.12	1241325.75
9	643111.42	1241355.86
10	643179.68	1241421.66
11	643190.14	1241427.00
12	643202.97	1241421.86
13	643215.55	1241433.45
14	643239.83	1241434.83
15	643315.62	1241513.30
16	643328.27	1241524.34

LEGEND:

- 6" GRAVEL BALLAST
- CAST IN PLACE CONCRETE SLAB, THICKNESS TO MATCH EXISTING
- 10 — FINISHED CAPPED SLOPE, SEE C-SHEETS
- EXISTING CONTOUR
- 12.6 — FINISHED GRADE SPOT ELEVATION (MLLLW)
- FINISH SURFACE SLOPE DIRECTION
- 13.19 — EXISTING SURFACE SPOT ELEVATION (MLLW)
- APPROXIMATE FLOW LINE / TEMPORARY WALL RELIEF EXCAVATION LIMITS, SEE NOTE 4
- SHEET PILE WALL, SEE NOTES 1 AND 2

NOTES:

1. SEE STRUCTURAL SHEETS FOR ADDITIONAL SHEET PILE WALL DETAILS AND TOP OF PILE CAP ELEVATION.
2. SEE STRUCTURAL SHEETS FOR BULKHEAD CONTROL POINTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE SIZE AND LOCATION OF ALL EXISTING ABOVE GRADE AND UNDERGROUND UTILITIES. CARE SHOULD BE TAKEN TO AVOID DAMAGE OR DISTURBANCE TO UTILITIES.
4. TEMPORARY WALL RELIEF EXCAVATION SHALL BE PERFORMED PRIOR TO DREDGING ADJACENT TO WALL, SEE STRUCTURAL SHEETS FOR MAXIMUM UNBALANCED HEIGHT REQUIREMENTS. AFTER WALL CONSTRUCTION AND CAPPING IS COMPLETE CONTRACTOR SHALL PLACE STRUCTURAL FILL AND BALLAST.



KEY PLAN

MAPLE ST. BULKHEAD PAVING AND GRADING PLAN

SCALE: 1"=20'

NORTH
PROJECT NORTH
0 20 40
SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

CALL 48 HOURS BEFORE YOU DIG DIAL 811

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M:\2011\11042 Whatcom Waterway Phase I Cleanup Action\Drawings\Current\REFX_22x34-TB.dwg Model
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DONALD L. OLSEN — STATE OF WASHINGTON — 29694 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

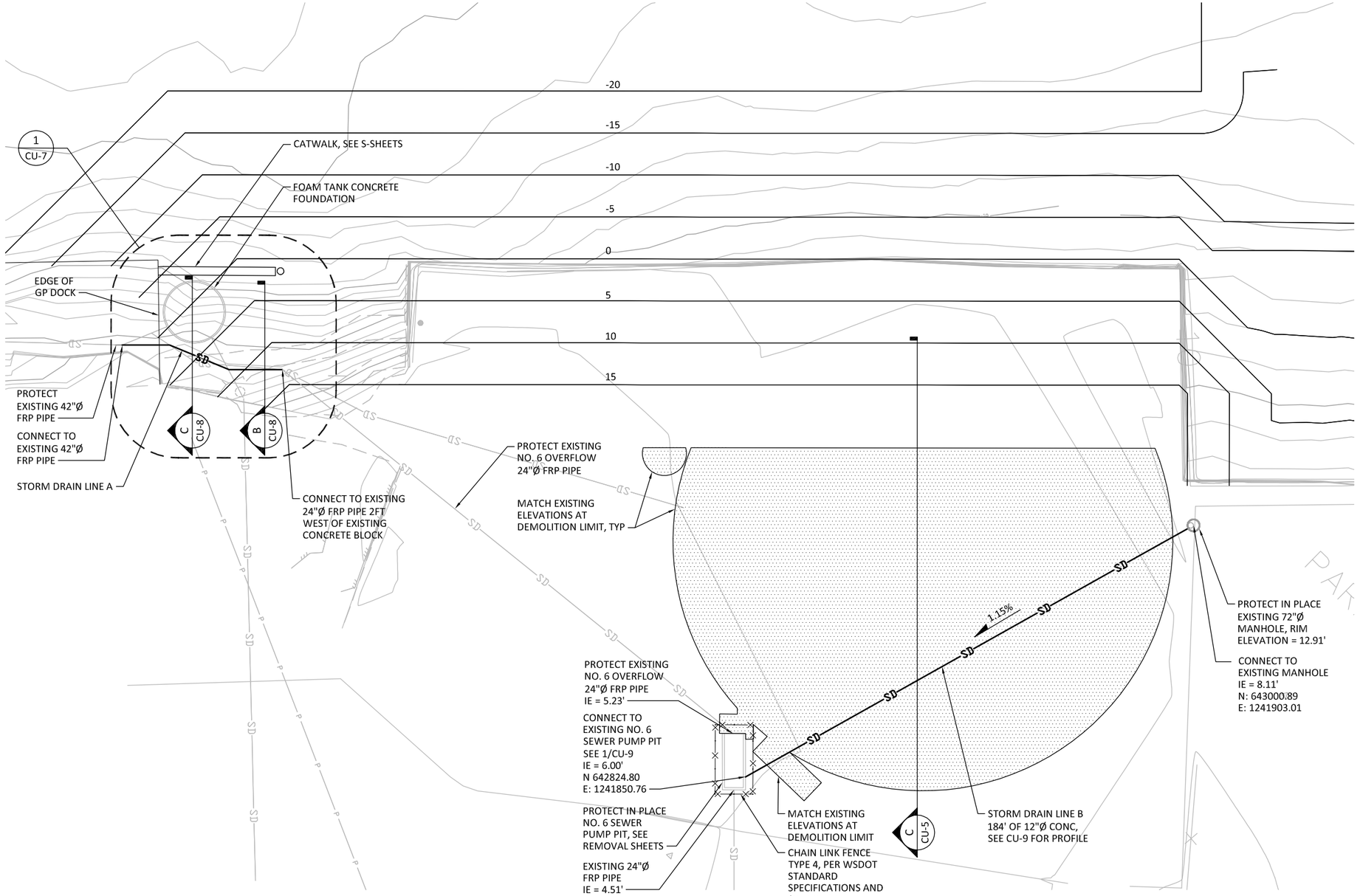
DESIGNED BY: SJS
DRAWN BY: GMC
CHECKED BY: MDK
APPROVED BY: DLO
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

MAPLE ST. BULKHEAD PAVING AND GRADING PLAN

CU-2

SHEET NO. 61 OF 104



CLARIFIER AREA DRAINAGE PLAN

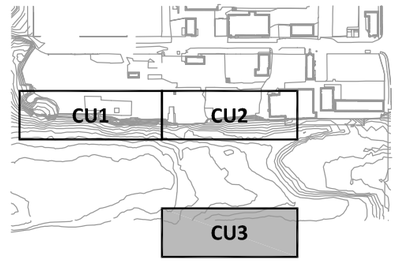
SCALE: 1"=20'

LEGEND:

- EXISTING STORM DRAIN PIPE
- STORM DRAIN PIPE
- 10 — FINISHED CAPPED SLOPE, SEE C-SHEETS
- EXISTING CONTOUR
- 6" GRAVEL BALLAST
- EXISTING DRAINAGE STRUCTURES
- 12.6 — FINISHED GRADE SPOT ELEVATION (MLLW)
- 1.15% — STORM DRAIN PIPE SLOPE

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE SIZE AND LOCATION OF ALL EXISTING ABOVE GRADE AND UNDERGROUND UTILITIES. EXISTING UTILITIES SHOWN HAVE BEEN OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ADDITIONAL UTILITIES NOT SHOWN. CARE SHOULD BE TAKEN TO AVOID DAMAGE OR DISTURBANCE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY HIS ACTIVITIES.



KEY PLAN

NORTH

PROJECT NORTH

0 20 40

SCALE IN FEET

CALL 48 HOURS BEFORE YOU DIG DIAL 811

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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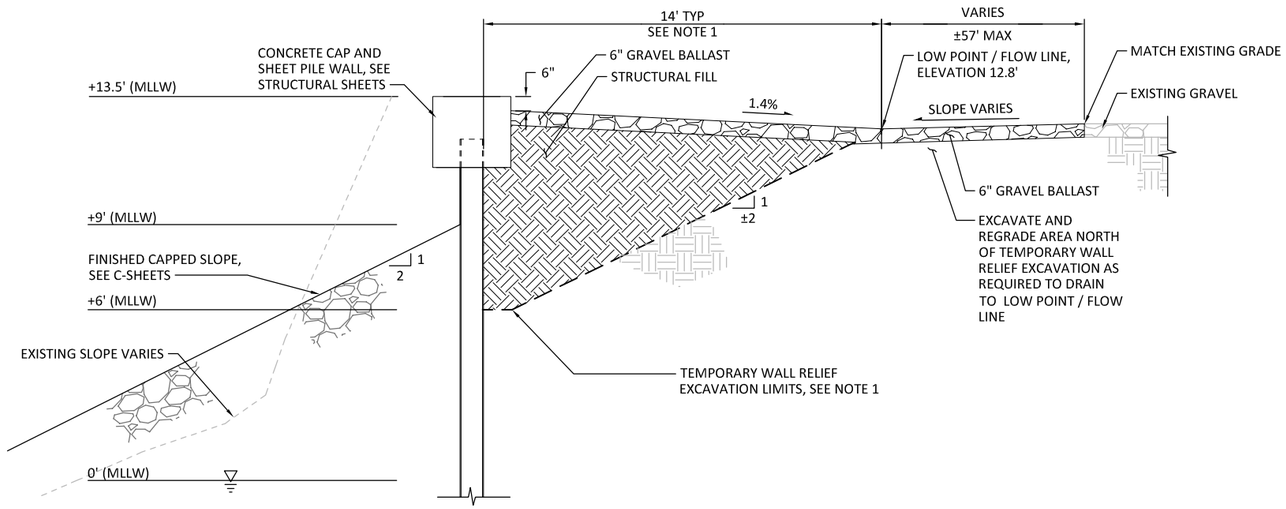
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

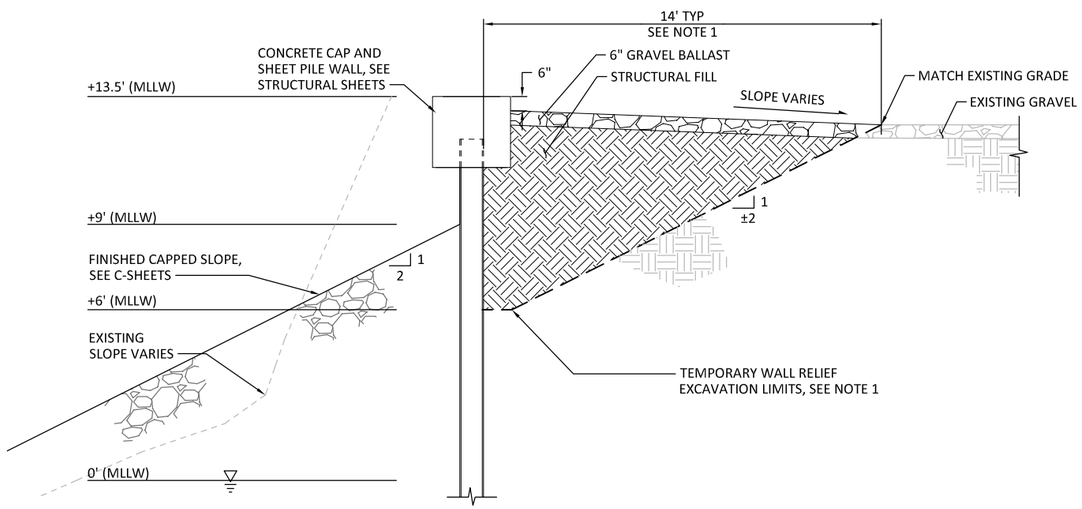
CLARIFIER AREA PAVING, GRADING AND DRAINAGE PLAN

CU-3

SHEET NO. 62 OF 104



A CU-1 SECTION
SCALE: 3/8" = 1'-0"



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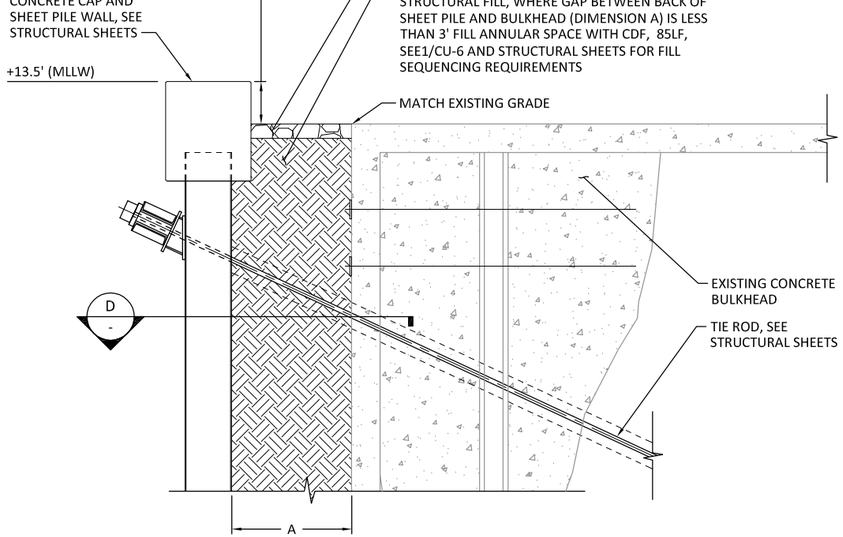
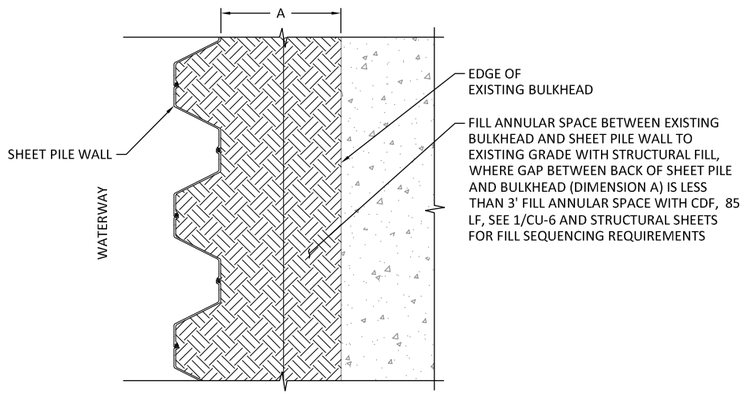
SCALE: 3/8" = 1'-0"



C CU-2 SECTION
SCALE: 3/8" = 1'-0"



D CU-4 SECTION
SCALE: 3/8" = 1'-0"

NOTE:

1. TEMPORARY WALL RELIEF EXCAVATION SHALL BE PERFORMED PRIOR DREDGING ADJACENT TO WALL, SEE STRUCTURAL SHEETS FOR MAXIMUM UNBALANCED HEIGHT REQUIREMENTS. AFTER WALL CONSTRUCTION AND CAPPING IS COMPLETE, CONTRACTOR SHALL PLACE STRUCTURAL FILL AND BALLAST.

CALL 48 HOURS
BEFORE YOU DIG
DIAL 811

ONE INCH
AT FULL SIZE, IF NOT ONE
INCH SCALE ACCORDINGLY

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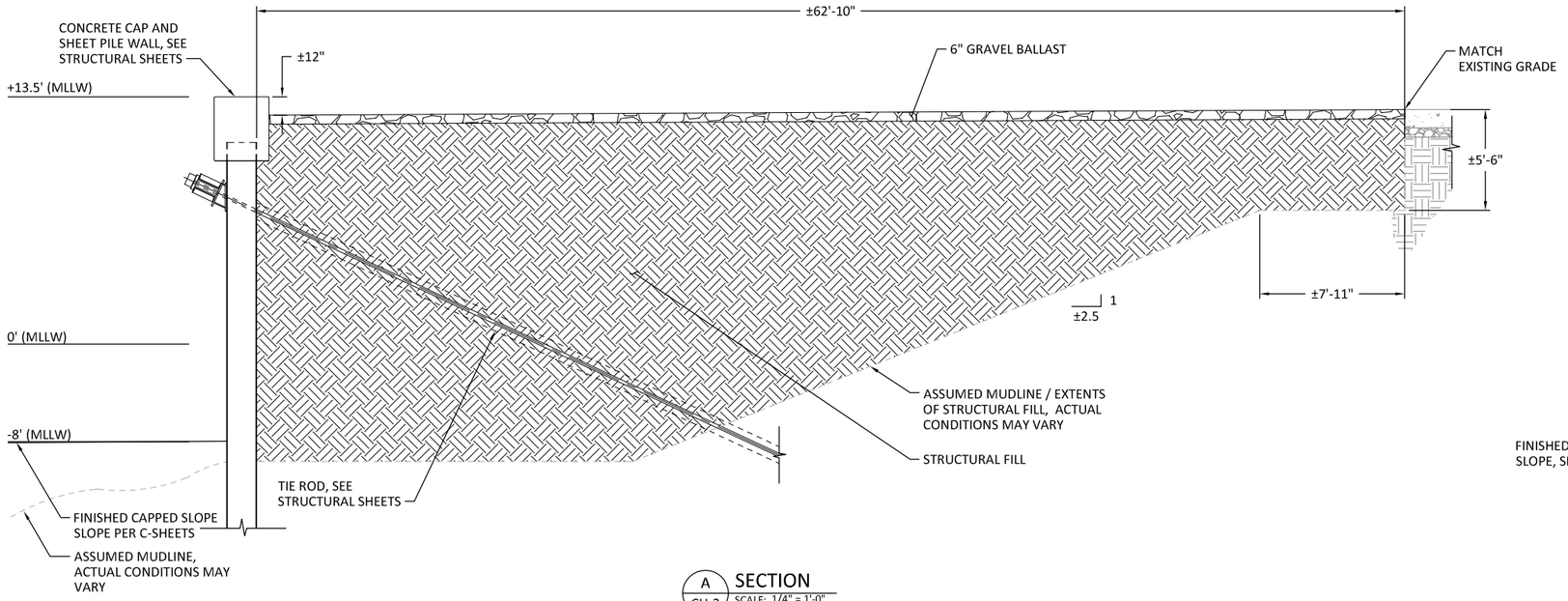
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

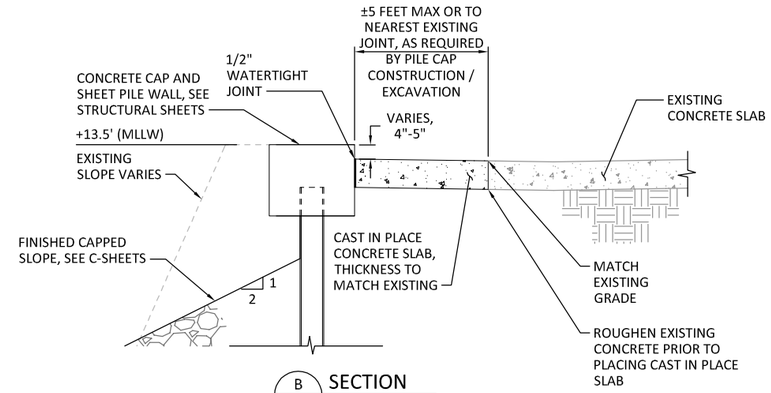
PAVING AND GRADING SECTIONS

CU-4

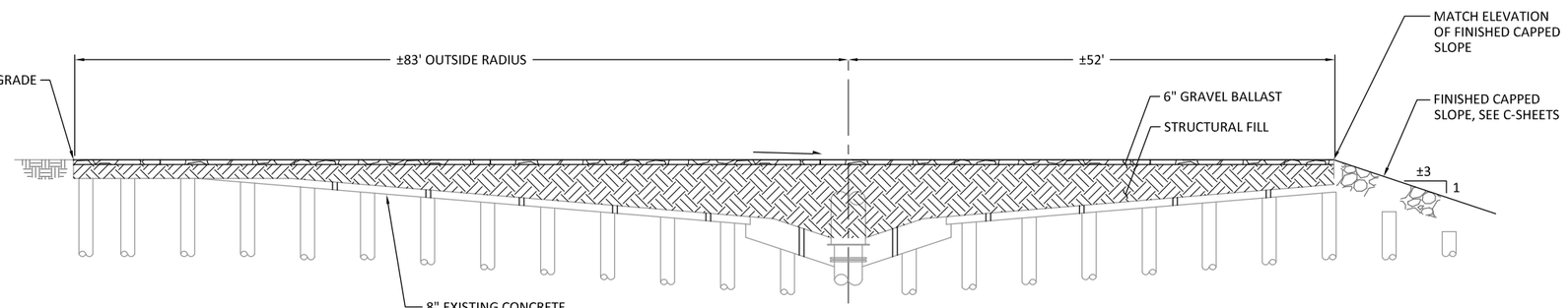
SHEET NO. 63 OF 104



A / CU-2 SECTION
SCALE: 1/4" = 1'-0"



B / CU-2 SECTION
SCALE: 3/8" = 1'-0"



C / CU-3 SECTION
SCALE: 1/8" = 1'-0"

CALL 48 HOURS BEFORE YOU DIG DIAL 811

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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DONALD L. OATES — STATE OF WASHINGTON — 29694 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

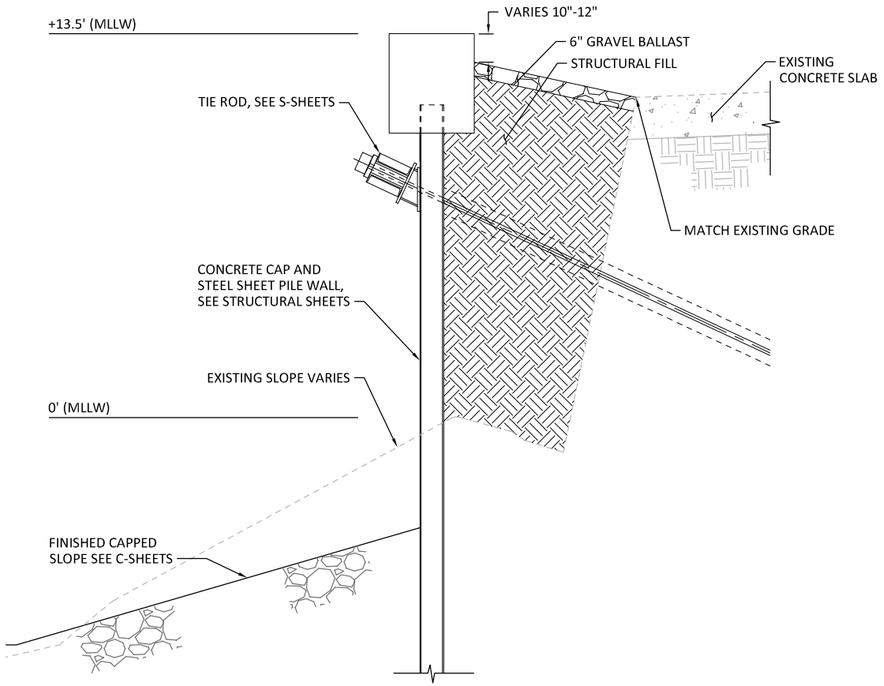
DESIGNED BY: SJS
DRAWN BY: GMC
CHECKED BY: MDK
APPROVED BY: DLO
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

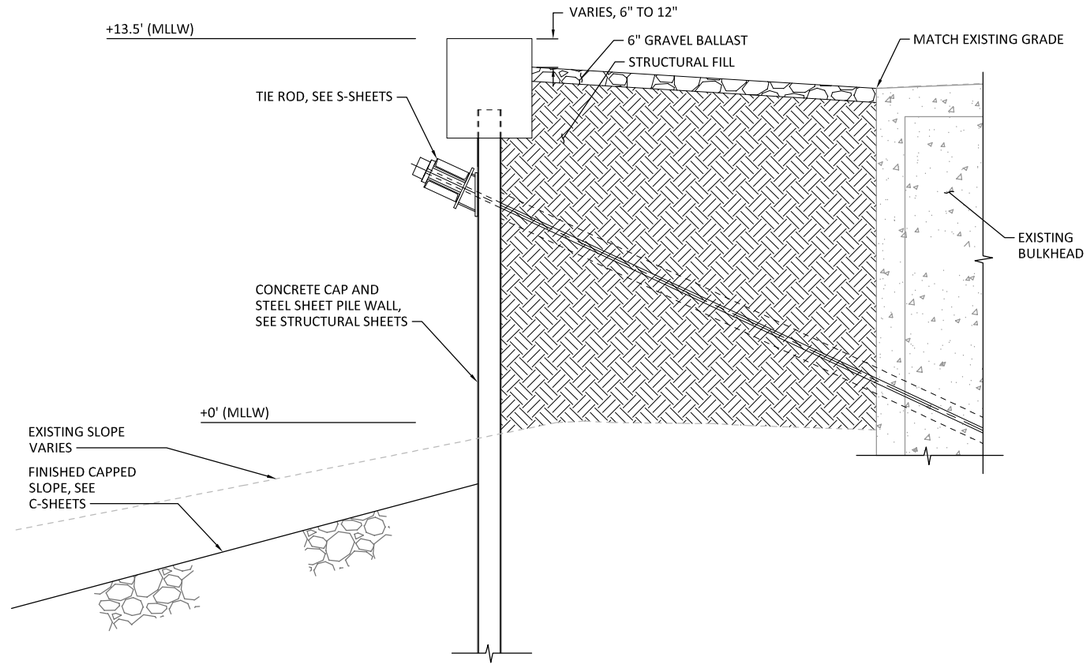
PAVING AND GRADING SECTIONS

CU-5

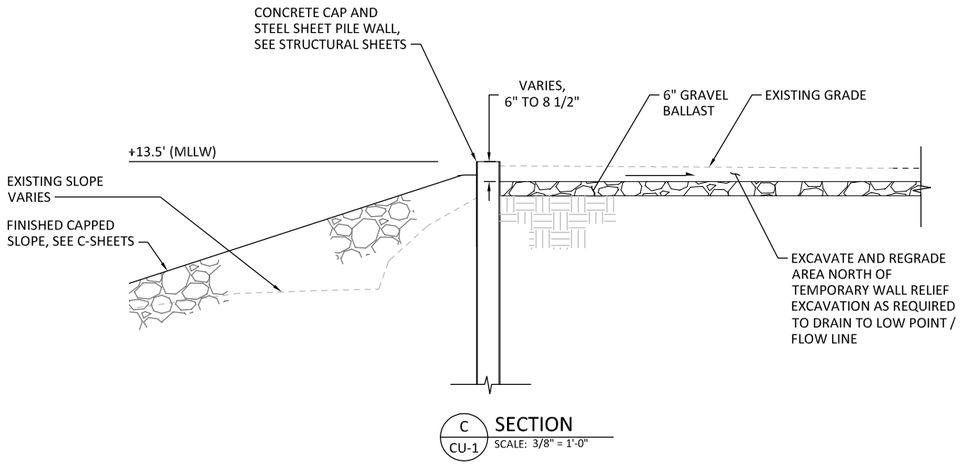
SHEET NO. 64 OF 104



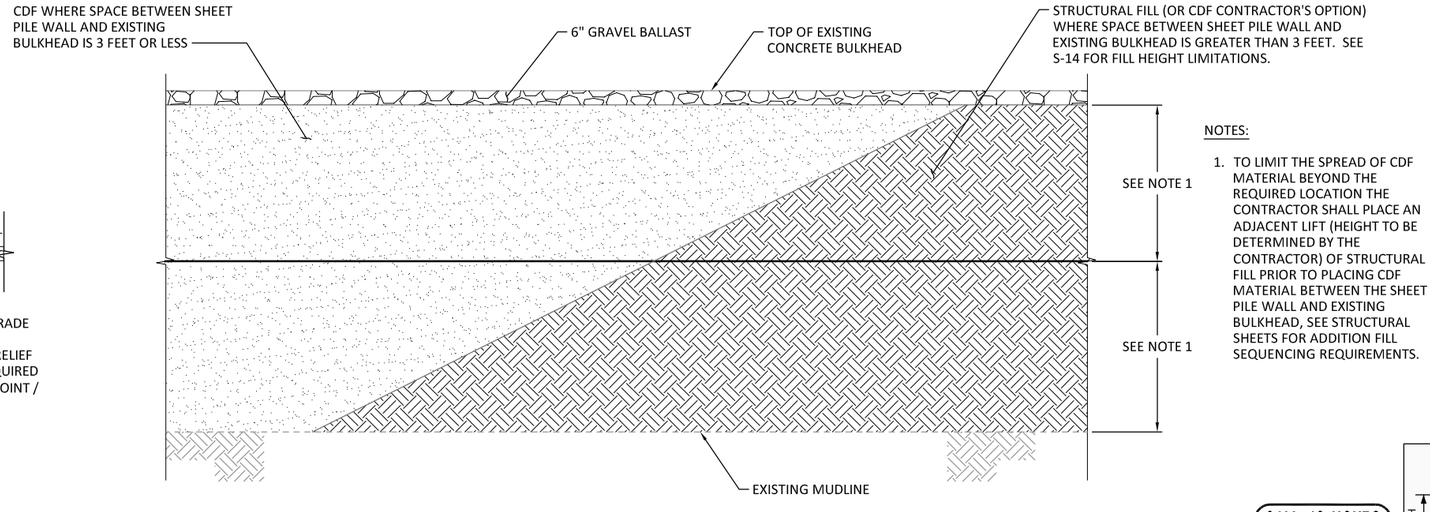
A / CU-2 SECTION
SCALE: 3/8" = 1'-0"



B / CU-2 SECTION
SCALE: 3/8" = 1'-0"



C / CU-1 SECTION
SCALE: 3/8" = 1'-0"



NOTES:

1. TO LIMIT THE SPREAD OF CDF MATERIAL BEYOND THE REQUIRED LOCATION THE CONTRACTOR SHALL PLACE AN ADJACENT LIFT (HEIGHT TO BE DETERMINED BY THE CONTRACTOR) OF STRUCTURAL FILL PRIOR TO PLACING CDF MATERIAL BETWEEN THE SHEET PILE WALL AND EXISTING BULKHEAD, SEE STRUCTURAL SHEETS FOR ADDITION FILL SEQUENCING REQUIREMENTS.

1 / CU-4 CDF AND STRUCTURAL FILL PLACEMENT DETAIL
SCALE: 3/8" = 1'-0"

CALL 48 HOURS BEFORE YOU DIG DIAL 811

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DONALD L. OATES — STATE OF WASHINGTON — 29694 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

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DRAWN BY: GMC
CHECKED BY: MDK
APPROVED BY: DLO
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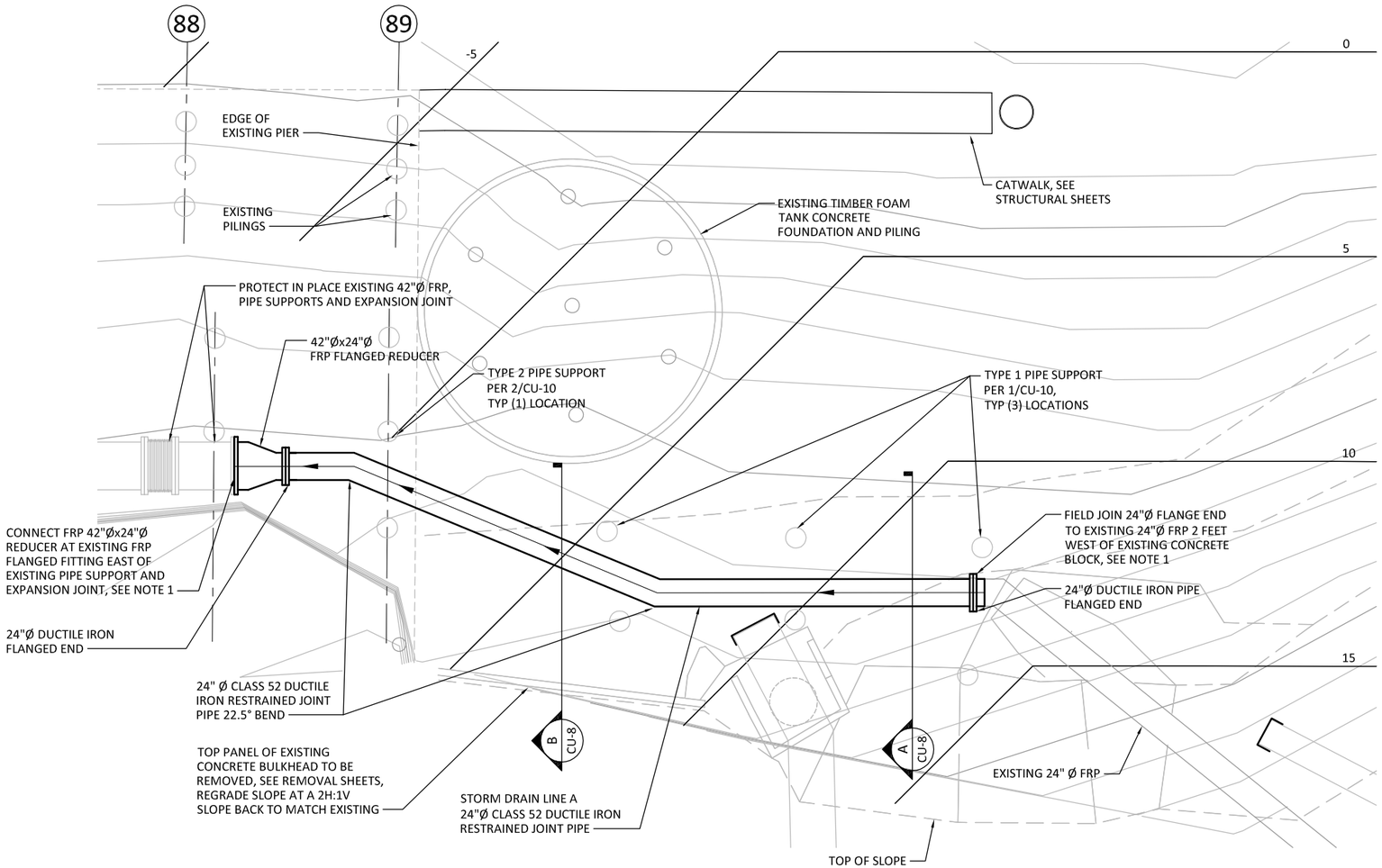
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

PAVING AND GRADING SECTIONS

CU-6

SHEET NO. 65 OF 104



1 / CU-3 FOAM TANK STORM DRAINAGE PLAN
SCALE: 1" = 5'-0"

LEGEND:

10 — FINISHED CAPPED SLOPE CONTOURS, SEE C-SHEETS

EXISTING CONTOUR

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING PILE LOCATIONS, EXISTING PIPE INVERTS, EXISTING AND DUCTILE IRON PIPE ROUTING AND BENDS, AND POINTS OF CONNECTION TO EXISTING FRP PIPES SHOWN ON THE PLAN. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS THAT MAY IMPACT THE WORK.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE SIZE AND LOCATION OF ALL EXISTING ABOVE GRADE AND UNDERGROUND UTILITIES. EXISTING UTILITIES SHOWN HAVE BEEN OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ADDITIONAL UTILITIES NOT SHOWN. CARE SHOULD BE TAKEN TO AVOID DAMAGE OR DISTURBANCE TO UTILITIES TO REMAIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY HIS ACTIVITIES.
3. SEE SHEET CU-8 FOR STORM DRAIN LINE A PROFILE.
4. SEE SHEET D-20 FOR EXISTING PIPING DEMOLITION.

NORTH

PROJECT NORTH

0 20 40
SCALE IN FEET

CALL 48 HOURS BEFORE YOU DIG DIAL 811

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29694
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PROFESSIONAL ENGINEER

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DRAWN BY: KMV
CHECKED BY: MDK
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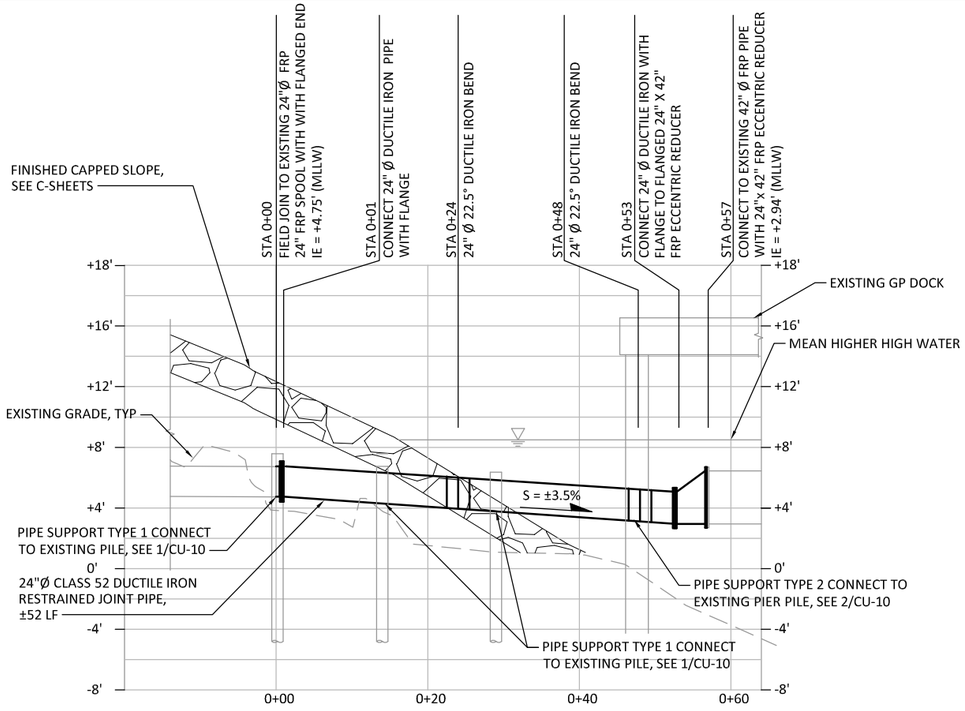
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

CIVIL UPLAND DETAILS

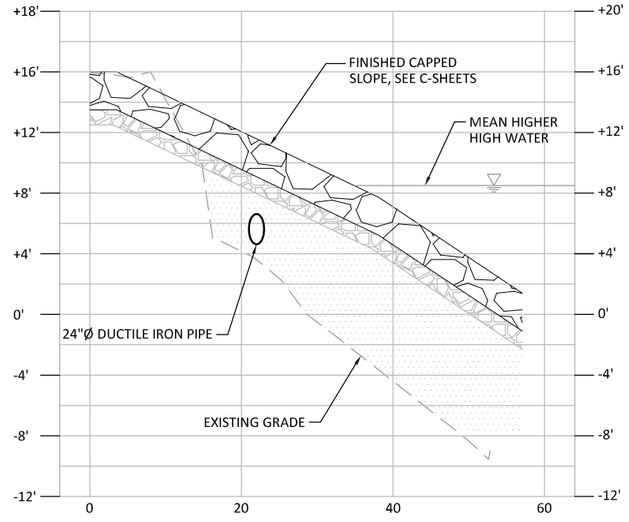
CU-7

SHEET NO. 66 OF 104

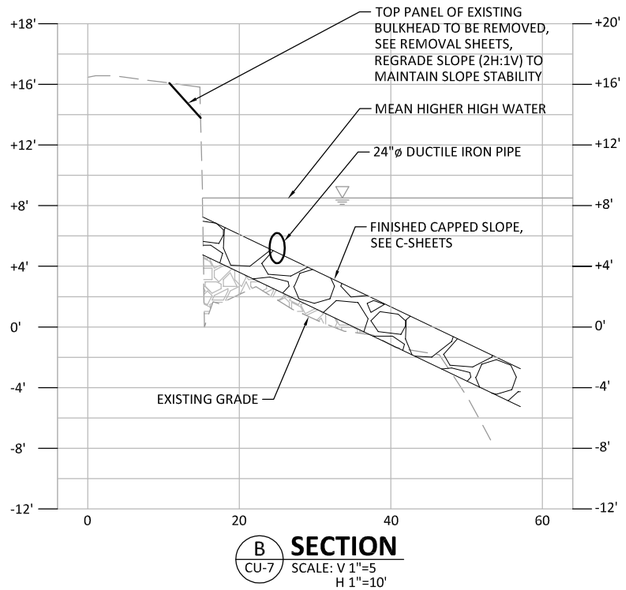


STORM DRAINAGE PROFILE LINE A

SCALE: V 1"=5'
H 1"=10'



A CU-7 **SECTION**
SCALE: V 1"=5'
H 1"=10'



B CU-7 **SECTION**
SCALE: V 1"=5
H 1"=10'

CALL 48 HOURS
BEFORE YOU DIG
DIAL 811

0 20 40
SCALE IN FEET

ONE INCH
AT FULL SIZE, IF NOT ONE
INCH SCALE ACCORDINGLY

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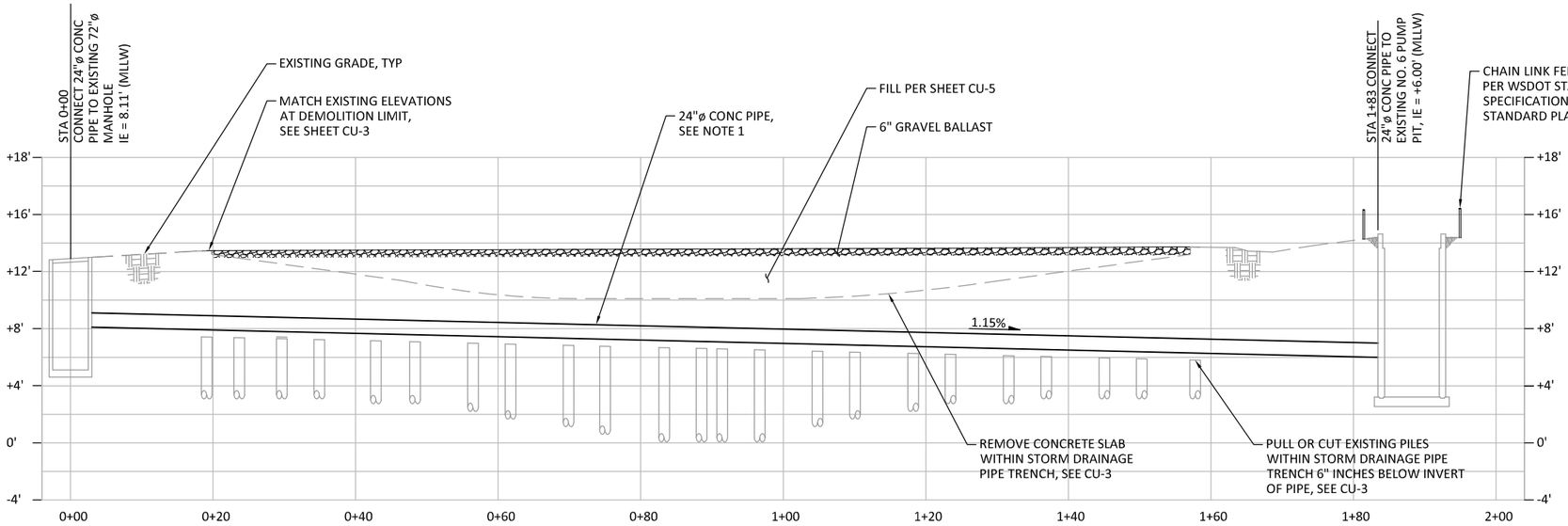
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

DRAINAGE PROFILES AND SECTIONS

CU-8

SHEET NO. **67** OF **104**

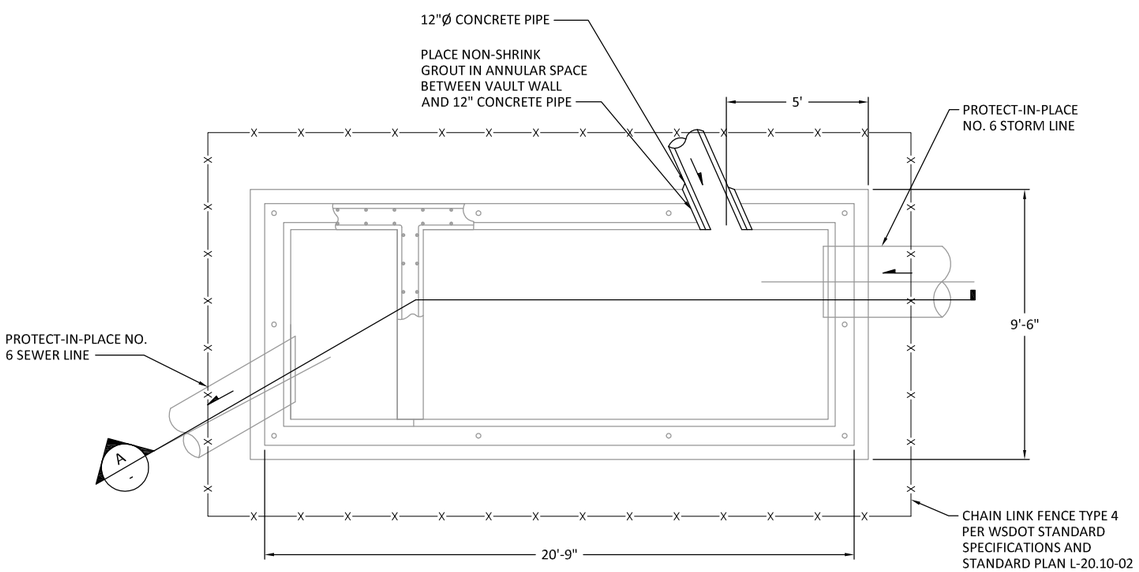


NOTES:

1. STORM DRAIN PIPE TRENCH, BEDDING AND BACKFILL SHALL BE PER WSDOT STANDARD SPECIFICATIONS AND STANDARD PLAN B-55.20-00

STORM DRAINAGE PROFILE LINE B

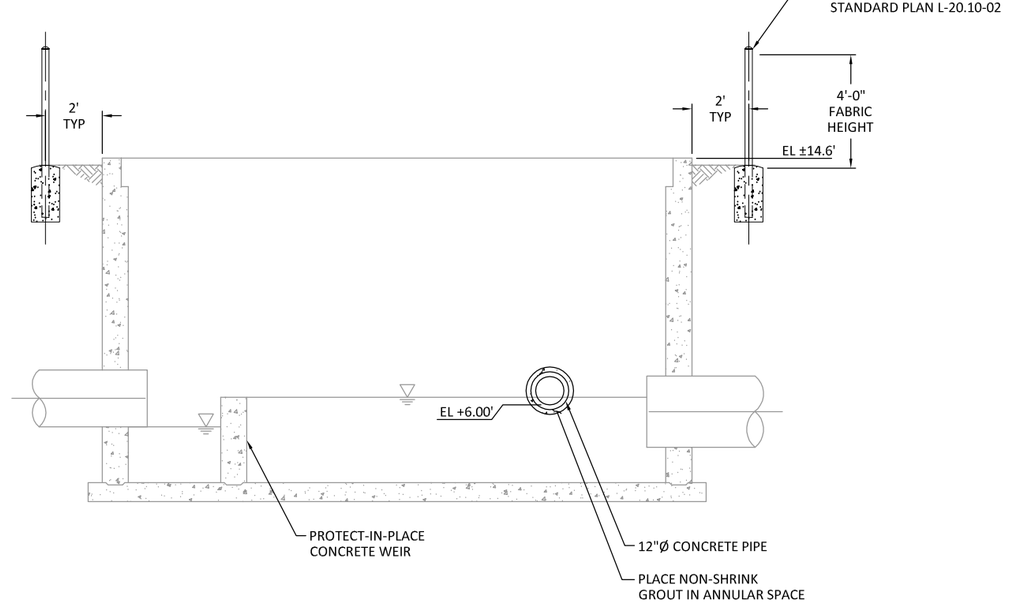
SCALE: H: 1"=10'
V: 1"=5'



1 / CU-3 NO. 6 PUMP PIT STORM DRAIN PIPE CONNECTION
SCALE: 3/8" = 1'-0"

NOTE:

DIMENSIONS OF EXISTING NO. 6 SEWER PIT SHOWN ARE APPROXIMATE AND ARE FOR REFERENCE ONLY.



A / - SECTION
SCALE: 3/8" = 1'-0"

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DONALD L. OLTES — STATE OF WASHINGTON — 29694 — REGISTERED PROFESSIONAL ENGINEER

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REV	DATE	BY	APP'D	DESCRIPTION

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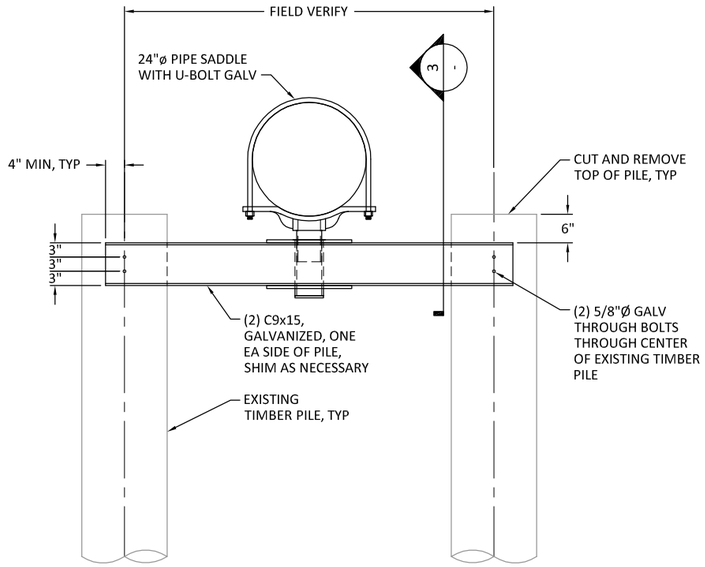
CHECKED BY: MDK
APPROVED BY: DLO
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

CIVIL UPLAND DETAILS

CU-9

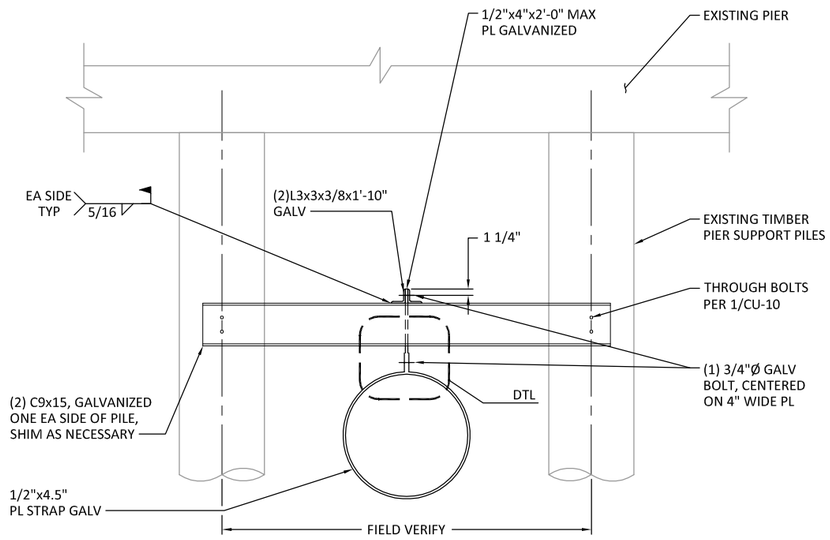
SHEET NO. 68 OF 104



NOTES:

1. ELEVATION OF PIPE SUPPORTS TO BE DETERMINED USING STORM DRAIN LINE A PROFILE, SHEET CU-8 AND SHALL BE FIELD VERIFIED.

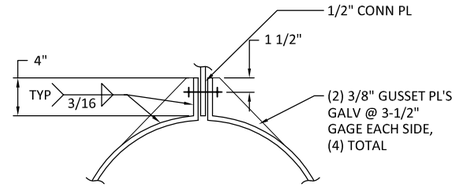
1 / CU-7 (CU-8) DETAIL - PIPE SUPPORT TYPE 1
SCALE: 3/8" = 1'-0"



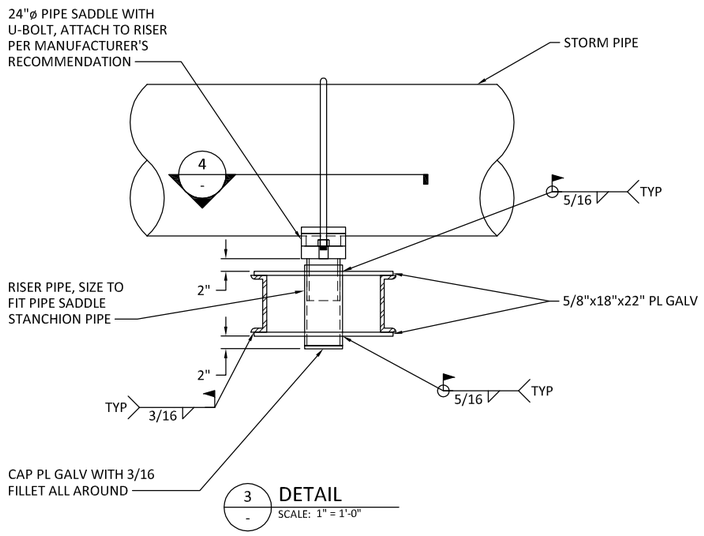
NOTES:

1. ELEVATION OF PIPE SUPPORTS TO BE DETERMINED USING STORM DRAIN LINE A PROFILE, SHEET CU-8 AND SHALL BE FIELD VERIFIED.

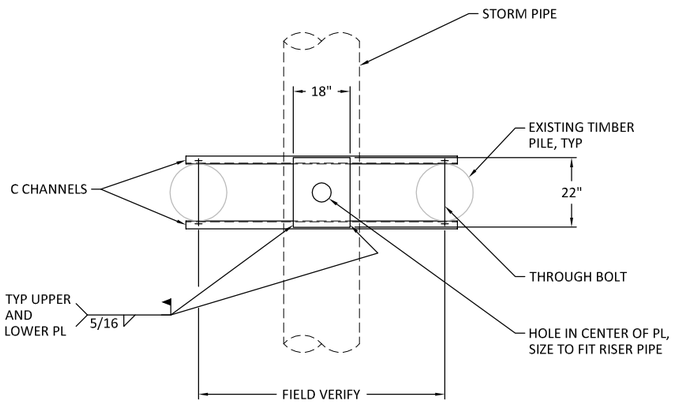
2 / CU-7 (CU-8) DETAIL - PIPE SUPPORT TYPE 2
SCALE: 3/8" = 1'-0"



DTL
SCALE: 1-1/2" = 1'-0"



3 / - DETAIL
SCALE: 1" = 1'-0"



4 / - DETAIL
SCALE: 1/2" = 1'-0"

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ROBERT H. RAY — STATE OF WASHINGTON — 33939 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: MDK
DRAWN BY: GMC
CHECKED BY: TAH
APPROVED BY: RHR
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

CIVIL UPLAND DETAILS

CU-10

SHEET NO. 69 OF 104

NOTES (APPLICABLE TO ALL ELECTRICAL DRAWINGS):

1. ALL EQUIPMENT, CONDUITS, HANDHOLES, CABLES, ETC. SHOWN &/OR INDICATED ON THE ELECTRICAL DRAWINGS ARE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ALL ELECTRICAL MATERIALS SHALL BE "UL" (UNDERWRITER'S LABORATORIES, INC.) LISTED, LABELED AND APPROVED FOR THE SERVICE INTENDED WHERE UL STANDARDS HAVE BEEN ESTABLISHED. ALL ELECTRICAL MATERIAL SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. PROVIDE ALL SUPERVISION, LABOR, SERVICES, TOOLS, MATERIALS & EQUIPMENT FOR A COMPLETE, SAFE & RELIABLE INSTALLATION, ADJUSTED, TESTED & READY FOR OPERATION.
4. PROVIDE ALL COORDINATION WITH UTILITIES AND PUGET SOUND ENERGY.
5. THE COMPLETED INSTALLATION SHALL BE DONE IN A NEAT & WORKMANLIKE MANNER, SHALL BE SUITABLE FOR THE LOCATION, AND SHALL BE IN ACCORDANCE ALL LAWS, RULES & REGULATIONS IN EFFECT AT THE SITE (INCLUDING THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, THE WASHINGTON STATE RULES & REGULATIONS FOR INSTALLING ELECTRIC WIRES & EQUIPMENT, AND THE WASHINGTON STATE ENERGY CODE).
6. ALL OPERATIONS SHALL BE CONDUCTED IN A MANNER TO AVOID THE RISK OF HARM TO PERSONS OR DAMAGE TO PROPERTY. DAMAGE SHALL IMMEDIATELY BE REPAIRED. CONSTRUCTION EQUIPMENT & TOOLS SHALL BE IN GOOD OPERATING CONDITION, AND BE DESIGNED FOR THE WORK REQUIRED.
7. THE ELECTRICAL DRAWINGS ARE GENERAL IN FORM AND DO NOT SHOW EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES.
8. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES, PROTECT EXISTING UTILITIES AS REQUIRED, AND REPAIR ANY DAMAGE TO EXISTING UTILITIES (KNOWN OR UNKNOWN, LOCATED OR NOT LOCATED) RESULTING FROM CONTRACTORS OPERATIONS WITHOUT INCREASE IN CONTRACT SUM. DAMAGED ELECTRICAL AND TELECOMMUNICATIONS (TELEPHONE, COMPUTER/DATA, TELEVISION, FIBER, COPPER, ETC.) CABLES SHALL BE REPLACED IN THEIR ENTIRETY. SPLICING WILL NOT BE ALLOWED.
9. VERIFY ALL TRENCH, EQUIPMENT, HANDHOLES, LIGHTPOLES, DEVICES, ETC. LOCATIONS WITH OWNER & ENGINEER PRIOR TO BEGINNING EXCAVATION, TRENCHING & ROUGH-IN.
10. CHANGES IN LOCATION UP TO 10' (E.G. EQUIPMENT AND DEVICES, TRENCH AND CONDUIT ROUTING, ETC.) MADE BEFORE INSTALLATION AND DEVIATIONS TO AVOID INTERFERENCES SHALL BE MADE WITHOUT INCREASE IN CONTRACT SUM.
11. POWER INTERRUPTIONS (WHETHER TO THE ENTIRE SYSTEM OR TO INDIVIDUAL BUILDINGS, PANELS, EQUIPMENT, DEVICES, ETC.) SHALL BE KEPT TO AN ABSOLUTE MINIMUM, AND SHALL NOT BE DONE WITHOUT PRIOR APPROVAL, 2 WEEKS ADVANCED SCHEDULING & COORDINATION MEETING WITH THE OWNER. SECONDARY VERIFICATION THAT POWER INTERUPTION WILL OCCUR IS ALSO REQUIRED 48 HOURS PRIOR TO THE DATE OF OCCURANCE.
12. BELOW GRADE CONDUIT SHALL BE SCHEDULE 40 PVC, DIRECT BURIED A MINIMUM OF 24 INCHES BELOW GRADE. WARNING TAPE SHALL BE BURIED ABOVE ALL CONDUITS.
13. BELOW GRADE CONDUITS CONTAINING BENDS SHALL BE DONE WITH GALVINIZED RIGID STEEL (GRS) OR FIBERGLASS. THE MINIMUM CHANGE OF DIRECTION IN ANY PLANE BETWEEN SECTIONS OF STRAIGHT PVC CONDUIT WITHOUT THE USE OF GRS OR FIBERGLASS BENDS SHALL BE LIMITED TO 5 DEGREES.
14. UNDERGROUND FEEDER, BRANCH CIRCUIT & EQUIPMENT GROUND CABLES SHALL BE 1/C STRANDED COPPER, #12 AWG UNLESS NOTED OTHERWISE, WITH 600V TYPE XHHW INSULATION.
15. IN ADDITION TO THE CIRCUIT CONDUCTORS INDICATED, CONTRACTOR SHALL PROVIDE AN EQUIPMENT GROUND CABLE (SIZED THE SAME AS THE LARGEST CIRCUIT CONDUCTOR UNLESS SPECIFICALLY NOTED OTHERWISE) WITHIN EACH RACEWAY WITH THE FEEDER OR CIRCUIT CONDUCTORS.

REMOVAL NOTES (APPLICABLE TO ALL ELECTRICAL DRAWINGS):

1. CONTRACTOR SHALL REMOVE ALL EXISTING POWER, LIGHTING, EQUIPMENT, RACEWAYS, CABLES, DEVICES, ETC. AS INDICATED. REMOVE RACEWAY AND CABLES BACK TO THEIR ORIGIN WHERE DEVICES ARE INDICATED TO BE REMOVED.
2. PROVIDE BLANK COVERS ON ALL UNUSED REMAINING BOXES AND METAL CAPS ON ALL UNUSED REMAINING CONDUITS.
3. UNLESS NOTED OTHERWISE, BELOW GRADE RACEWAYS ARE ALLOWED TO REMAIN, EXCEPT, WIRING SHALL BE REMOVED. EXISTING BELOW GRADE RACEWAYS ARE ALLOWED TO BE RE-USED IF IN GOOD CONDITION & SUITABLE FOR THE NEW INSTALLATION.
4. EXISTING CIRCUITS, CONDUITS, CABLES, ETC. INTERRUPTED DUE TO THE CONSTRUCTION SHALL BE RE-CONNECTED AS REQUIRED TO MAINTAIN THE CIRCUIT.
5. ALL SURPLUS MATERIAL REMOVED SHALL BE INSPECTED BY THE OWNER AND TENANT, AND THOSE ITEMS SELECTED SHALL REMAIN THE PROPERTY OF THE OWNER AND TENANT. ALL REMAINING SURPLUS MATERIALS SHALL BE REMOVED FROM THE SITE & DISPOSED OF BY THE CONTRACTOR.
6. CONTACT THE OWNER AND ALL UTILITIES TO DETERMINE EXACT LOCATION OF EXISTING BELOW GRADE UTILITIES, SERVICES, PIPES, CONDUITS, CABLES, ETC. BEFORE DOING ANY EXCAVATING OR TRENCHING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING (AS REQUIRED) ALL THAT HE DAMAGES, KNOWN OR UNKNOWN.

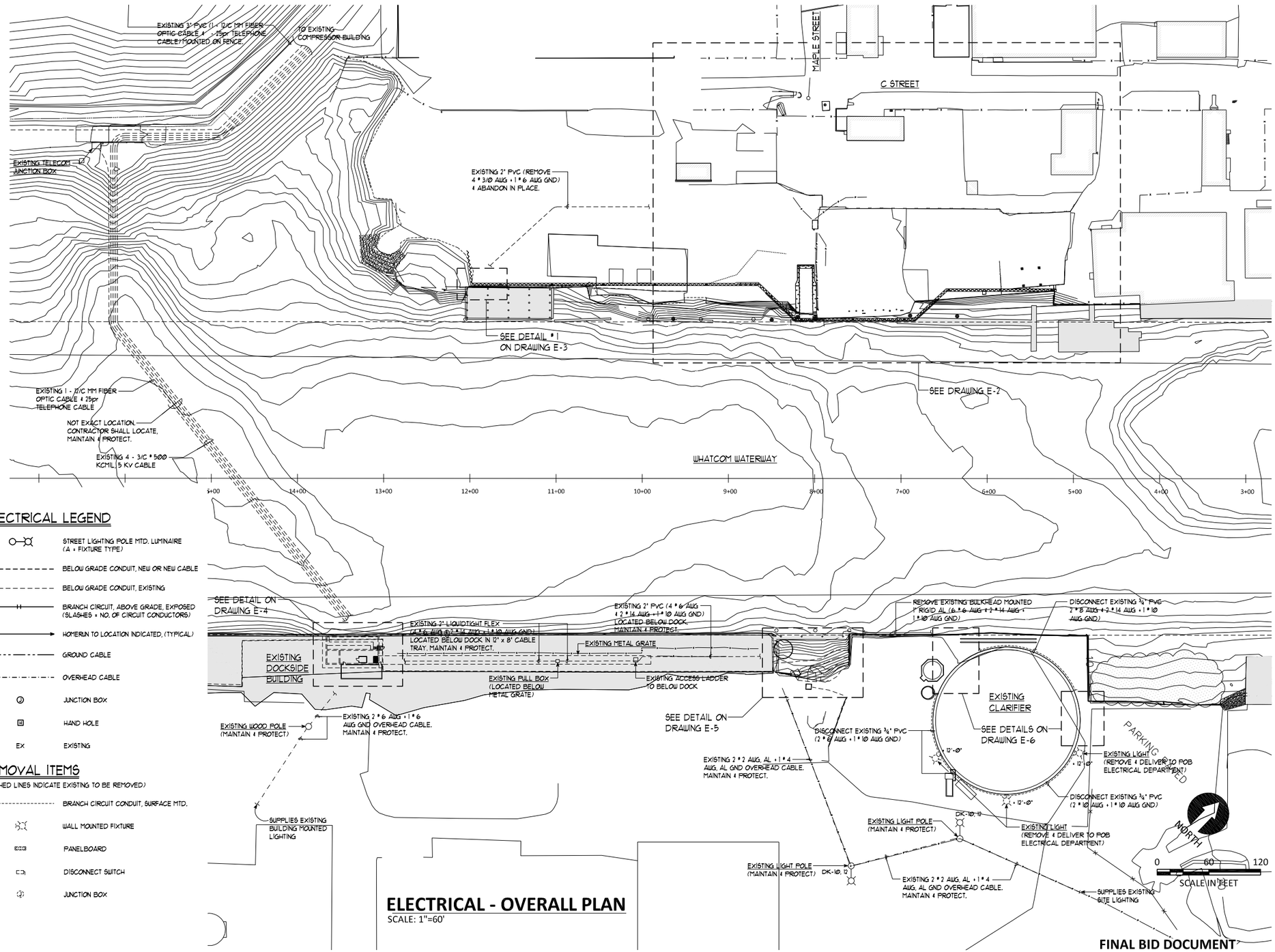
ELECTRICAL LEGEND

- STREET LIGHTING POLE MTD. LUMINAIRE (A = FIXTURE TYPE)
- BELOW GRADE CONDUIT, NEW OR NEW CABLE
- BELOW GRADE CONDUIT, EXISTING
- BRANCH CIRCUIT, ABOVE GRADE, EXPOSED (SLASHES = NO. OF CIRCUIT CONDUCTORS)
- HOMERUN TO LOCATION INDICATED, (TYPICAL)
- GROUND CABLE
- OVERHEAD CABLE
- JUNCTION BOX
- HAND HOLE
- EX EXISTING

REMOVAL ITEMS

(DASHED LINES INDICATE EXISTING TO BE REMOVED)

- BRANCH CIRCUIT CONDUIT, SURFACE MTD.
- WALL MOUNTED FIXTURE
- PANELBOARD
- DISCONNECT SWITCH
- JUNCTION BOX



ELECTRICAL - OVERALL PLAN

SCALE: 1"=60'

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(206) 287-9130

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Lynden, WA. 98264
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FAX (360) 354-6794

STEVEN B. TEVELDE — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. TEVELDE
DRAWN BY: K. LANCE
CHECKED BY: S. TEVELDE
APPROVED BY: S. TEVELDE
SCALE: AS NOTED
DATE: MAY 2013

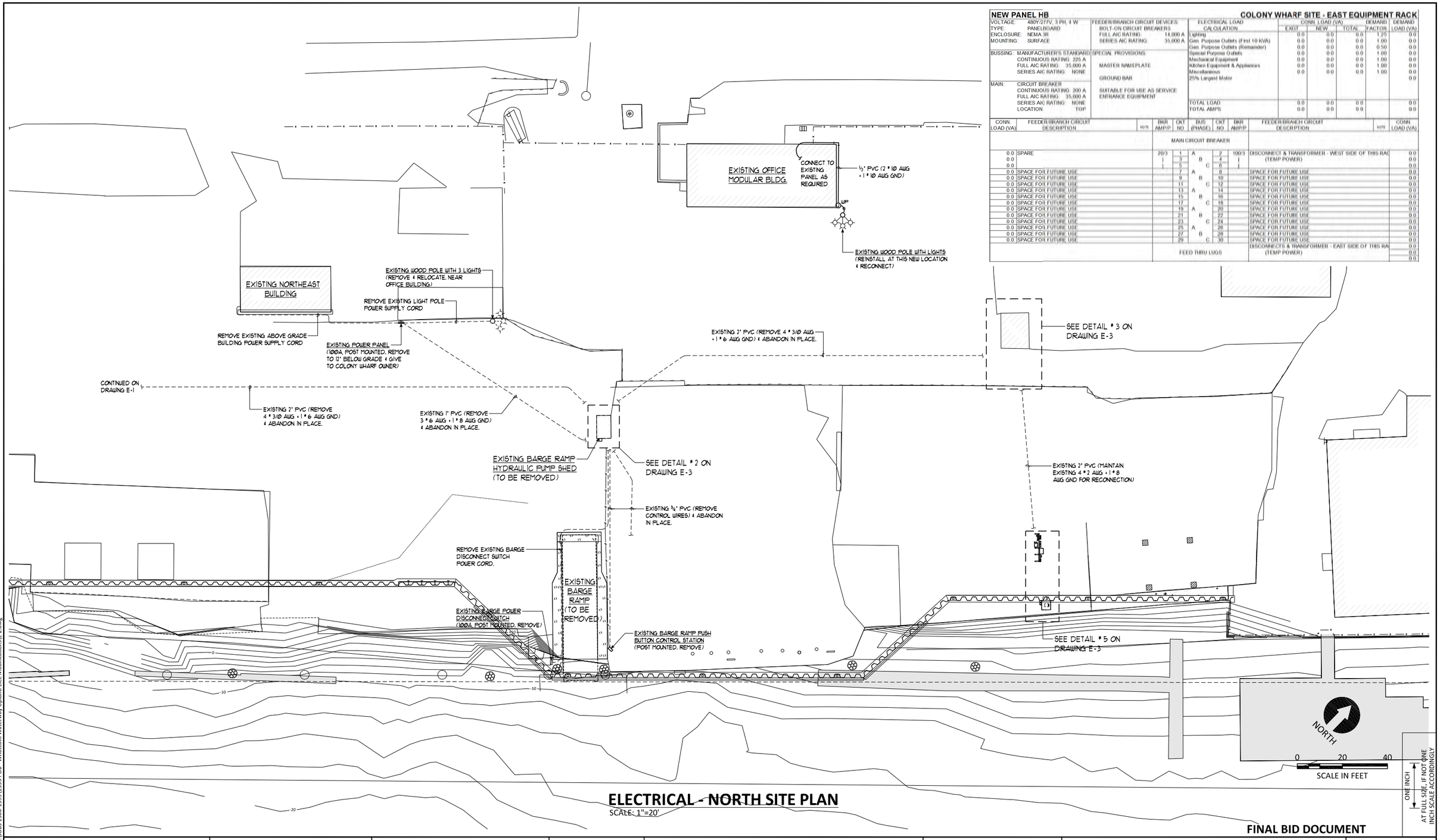
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

ELECTRICAL - OVERALL PLAN, LEGEND & NOTES

E-1

SHEET NO. 70 OF 104

May 14, 2013 - 11:02am KIM K:\JOBS 1500-1599\1555 POB - Whatcom Waterway Upland Elec Modifications\E-1.dwg



NEW PANEL HB — **COLONY WHARF SITE - EAST EQUIPMENT RACK**

VOLTAGE:	480Y/277V, 3 PH, 4 W
TYPE:	PANELBOARD
ENCLOSURE:	NEMA 3R
MOUNTING:	SURFACE
BUSSING:	MANUFACTURER'S STANDARD
	CONTINUOUS RATING: 225 A
	FULL AIC RATING: 35,000 A
	SERIES AIC RATING: NONE
MAIN:	CIRCUIT BREAKER
	CONTINUOUS RATING: 200 A
	FULL AIC RATING: 35,000 A
	SERIES AIC RATING: NONE
	LOCATION: TOP

FEEDER/BRANCH CIRCUIT DEVICES: BOLT-ON CIRCUIT BREAKERS
FULL AIC RATING: 14,000 A
SERIES AIC RATING: 35,000 A

SPECIAL PROVISIONS:
MASTER NAMEPLATE
GROUND BAR
SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	0.0	0.0	1.25	0.0
Gen. Purpose Outlets (First 10 KVA)	0.0	0.0	0.0	1.00	0.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	0.0	0.0	1.00	0.0
Mechanical Equipment	0.0	0.0	0.0	1.00	0.0
Kitchen Equipment & Appliances	0.0	0.0	0.0	1.00	0.0
Miscellaneous	0.0	0.0	0.0	1.00	0.0
25% Largest Motor					0.0
TOTAL LOAD	0.0	0.0	0.0		0.0
TOTAL AMPS	0.0	0.0	0.0		0.0

CONN. LOAD (VA)	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	BKR AMP/P	CKT NO	BUS (PHASE)	CKT NO	BKR AMP/P	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	CONN. LOAD (VA)
			MAIN CIRCUIT BREAKER							
0.0	SPARE		20/3	1	A	2	100/3	DISCONNECT & TRANSFORMER - WEST SIDE OF THIS RAC		0.0
0.0				3	B	4		(TEMP POWER)		0.0
0.0				5	C	6				0.0
0.0	SPACE FOR FUTURE USE			7	A	8		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			9	B	10		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			11	C	12		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			13	A	14		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			15	B	16		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			17	C	18		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			19	A	20		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			21	B	22		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			23	C	24		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			25	A	26		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			27	B	28		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			29	C	30		SPACE FOR FUTURE USE		0.0
			FEED THRU LUGS					DISCONNECTS & TRANSFORMER - EAST SIDE OF THIS RA		0.0
								(TEMP POWER)		0.0
										0.0

ELECTRICAL - NORTH SITE PLAN

SCALE: 1"=20'

FINAL BID DOCUMENT

PORT OF BELLINGHAM
Washington State

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STEVEN B. TEVELDE — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER — 5/14/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. TEVELDE
DRAWN BY: K. LANCE
CHECKED BY: S. TEVELDE
APPROVED BY: S. TEVELDE
SCALE: AS NOTED
DATE: MAY 2013

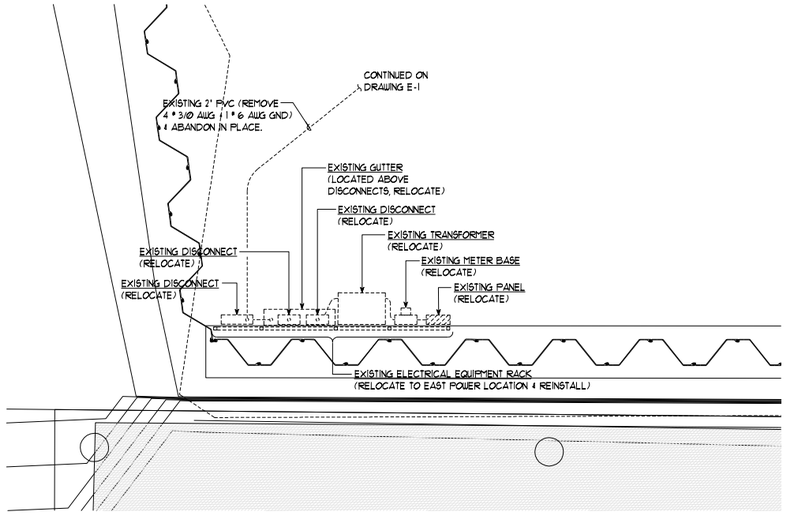
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

ELECTRICAL - NORTH SITE PLAN

E-2

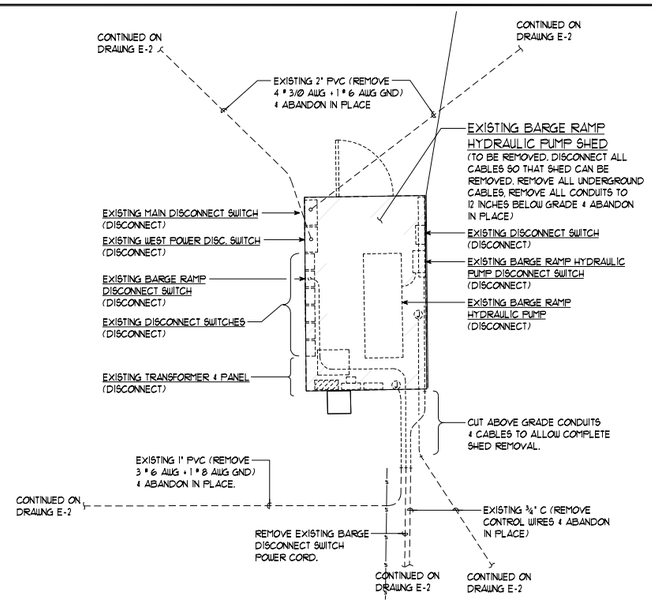
SHEET NO. 71 OF 104

May 14, 2013 - 11:01am KIM K:\JOBS 1500-1599\1555 POB - Whatcom Waterway Upland Elec Modification\E-2.dwg



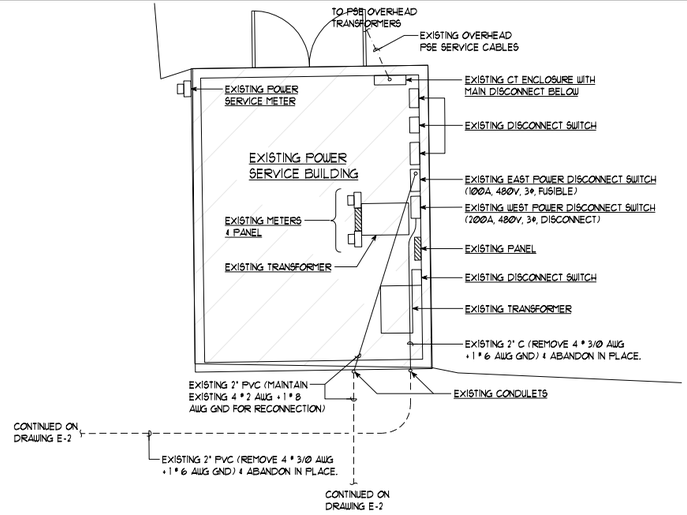
ELECTRICAL DETAIL # 1 - WEST POWER

SCALE: 1/4"=1'-0"



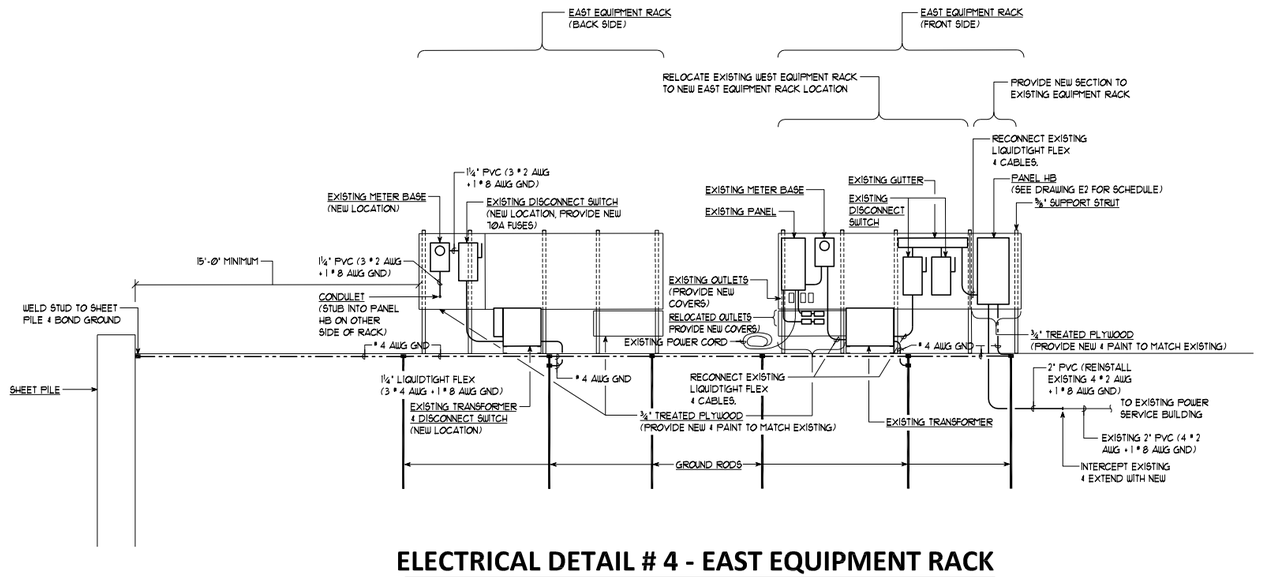
ELECTRICAL DETAIL # 2 - BARGE RAMP PUMP SHED

SCALE: 1/4"=1'-0"



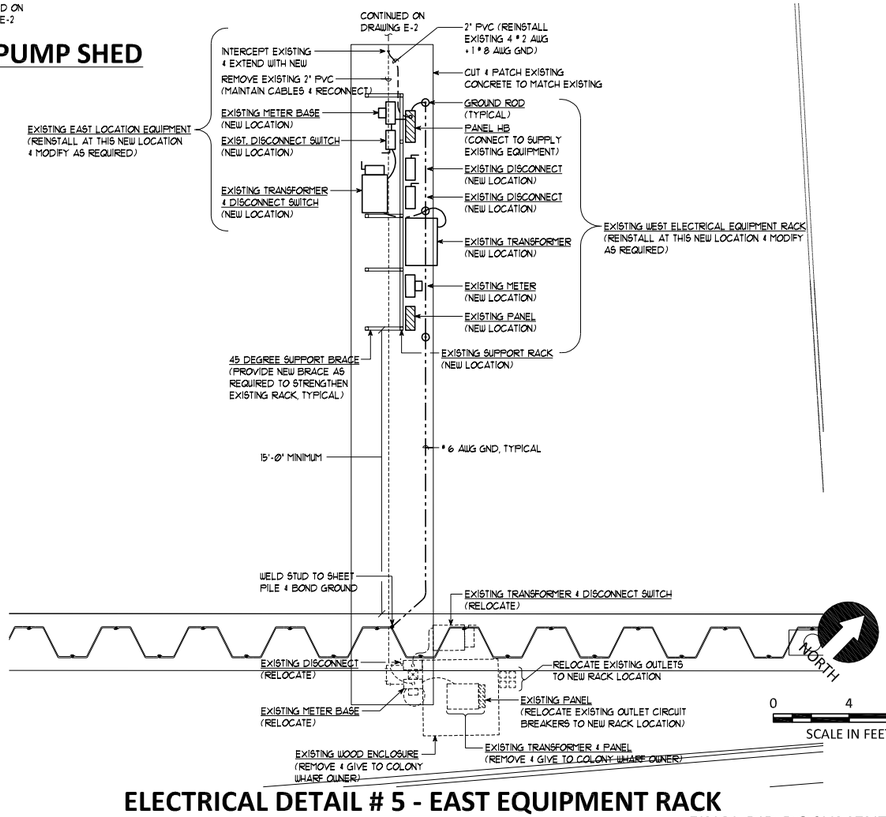
ELECTRICAL DETAIL # 3 - POWER SERVICE BUILDING

SCALE: 1/4"=1'-0"



ELECTRICAL DETAIL # 4 - EAST EQUIPMENT RACK

SCALE: 1/4"=1'-0"



ELECTRICAL DETAIL # 5 - EAST EQUIPMENT RACK

SCALE: 1/4"=1'-0"

FINAL BID DOCUMENT

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

May 14, 2013 - 1:39pm KIM K:\JOBS 1500-1599\1555 POB - Whatcom Waterway Upland Elec Modifications\E-3.dwg

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REVISIONS				
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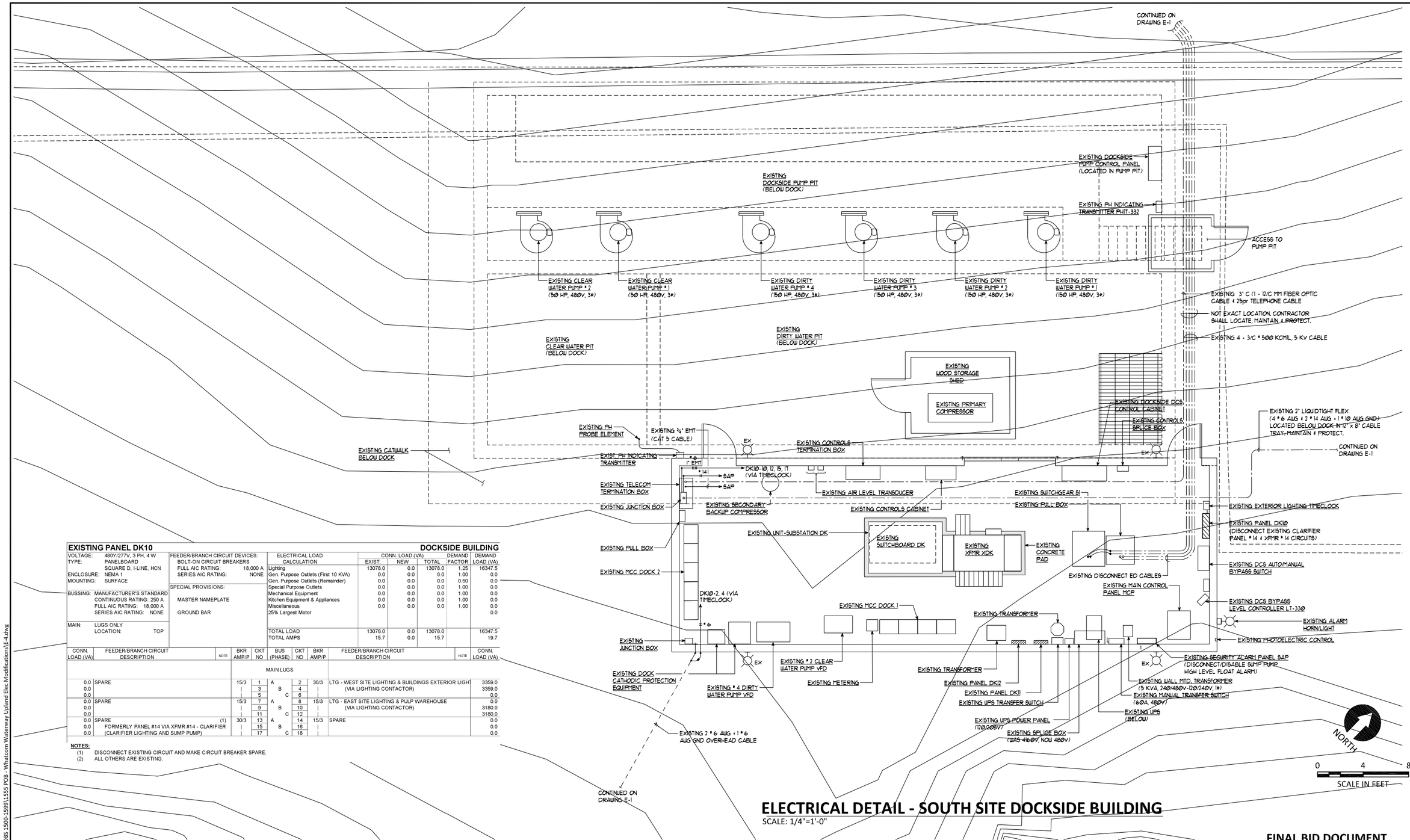
DRAWN BY: K. LANCE
CHECKED BY: S. TEVELDE
APPROVED BY: S. TEVELDE
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

ELECTRICAL - DETAILS

E-3

SHEET NO. 72 OF 104



EXISTING PANEL DK10 — DOCKSIDE BUILDING

VOLTAGE: 480Y/277V, 3 PH, 4 W
TYPE: PANELBOARD, SQUARE D, I-LINE, HCN
ENCLOSURE: NEMA 1
MOUNTING: SURFACE

BUSSING: MANUFACTURER'S STANDARD
CONTINUOUS RATING: 250 A
FULL AIC RATING: 18,000 A
SERIES AIC RATING: NONE

MAIN: LUGS ONLY
LOCATION: TOP

FEEDER/BRANCH CIRCUIT DEVICES: BOLT-ON CIRCUIT BREAKERS
FULL AIC RATING: 18,000 A
SERIES AIC RATING: NONE

SPECIAL PROVISIONS:
MASTER NAMEPLATE
GROUND BAR

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	13078.0	0.0	13078.0	1.25	16347.5
Gen. Purpose Outlets (First 10 KVA)	0.0	0.0	0.0	1.00	0.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	0.0	0.0	1.00	0.0
Mechanical Equipment	0.0	0.0	0.0	1.00	0.0
Kitchen Equipment & Appliances	0.0	0.0	0.0	1.00	0.0
Miscellaneous	0.0	0.0	0.0	1.00	0.0
25% Largest Motor					0.0
TOTAL LOAD	13078.0	0.0	13078.0		16347.5
TOTAL AMPS	15.7	0.0	15.7		19.7

MAIN LUGS

CONN. LOAD (VA)	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	BKR AMP/P	CKT NO	BUS (PHASE)	CKT NO	BKR AMP/P	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	CONN. LOAD (VA)
0.0	SPARE		15/3	1	A	2	30/3	LTG - WEST SITE LIGHTING & BUILDINGS EXTERIOR LIGHT (VIA LIGHTING CONTACTOR)		3359.0
0.0			|	3	B	4	|			3359.0
0.0			|	5	C	6	|			0.0
0.0	SPARE		15/3	7	A	8	15/3	LTG - EAST SITE LIGHTING & PULP WAREHOUSE (VIA LIGHTING CONTACTOR)		0.0
0.0			|	9	B	10	|			3180.0
0.0			|	11	C	12	|			3180.0
0.0	SPARE	(1)	30/3	13	A	14	15/3	SPARE		0.0
0.0	FORMERLY PANEL #14 VIA XFMR #14 - CLARIFIER (CLARIFIER LIGHTING AND SUMP PUMP)		|	15	B	16	|			0.0
0.0			|	17	C	18	|			0.0

NOTES:
(1) DISCONNECT EXISTING CIRCUIT AND MAKE CIRCUIT BREAKER SPARE.
(2) ALL OTHERS ARE EXISTING.

ELECTRICAL DETAIL - SOUTH SITE DOCKSIDE BUILDING

SCALE: 1/4"=1'-0"

FINAL BID DOCUMENT

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

May 14, 2013 - 12:36pm KIM K:\JOBS 1500-1599\1555 POB - Whatcom Waterway Upland Elec Modifications\E-4.dwg

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STEVEN B. TEVELDE — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER

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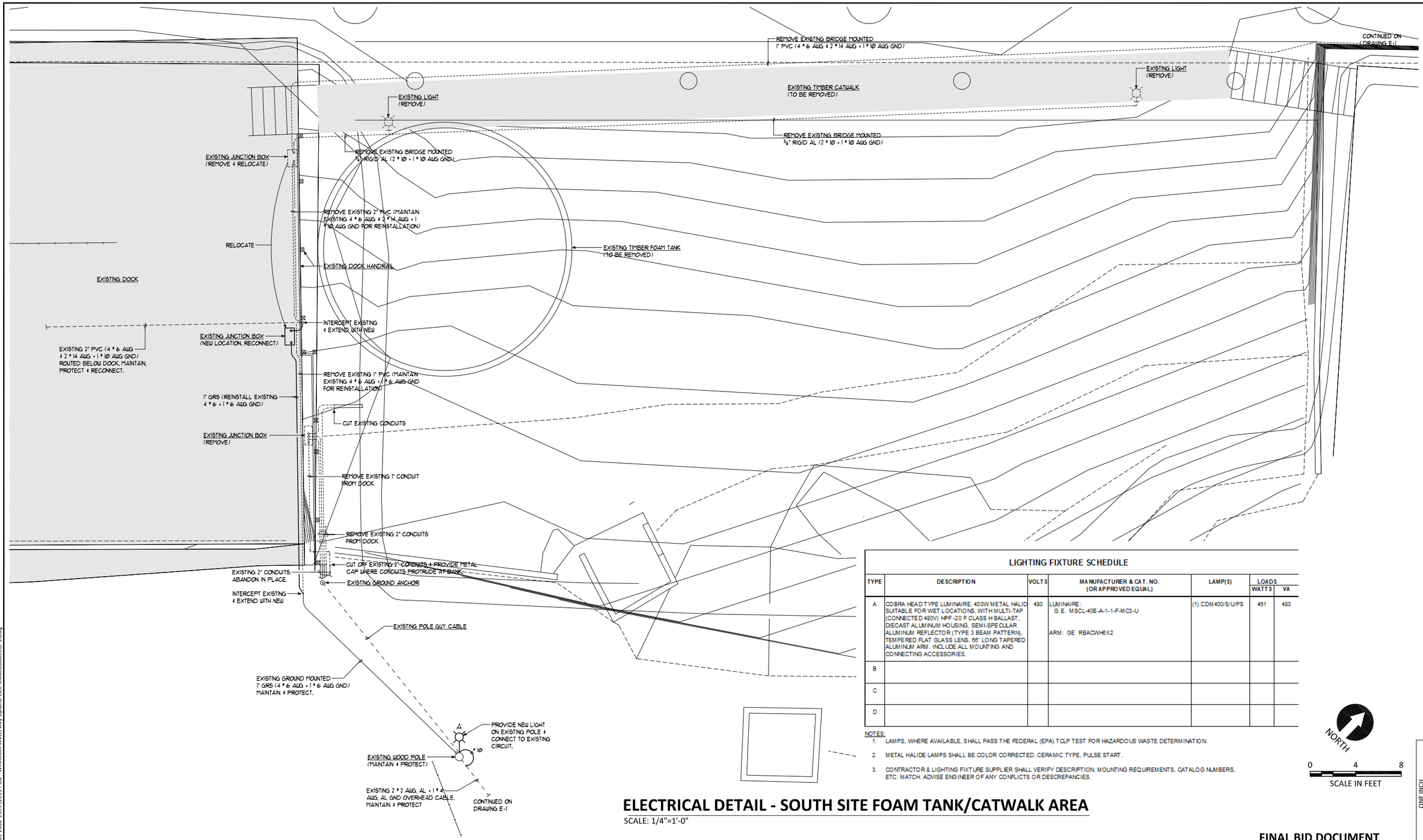
DESIGNED BY: S. TEVELDE
DRAWN BY: K. LANCE
CHECKED BY: S. TEVELDE
APPROVED BY: S. TEVELDE
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

ELECTRICAL DETAIL - SOUTH SITE DOCKSIDE BUILDING

E-4
SHEET NO. 73 OF 104



LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	VOLTS	MANUFACTURER & CAT. NO. (OR APPROVED EQUAL)	LAMP(S)	LOADS WATTS	LOADS VA
A	COBRA HEAD TYPE LUMINAIRE, 400W METAL HALID SUITABLE FOR WET LOCATIONS, WITH MULTI-TAP (CONNECTED 480V) HPF -20 F CLASS H BALLAST, DIECAST ALUMINUM HOUSING, SEMI-SPECULAR ALUMINUM REFLECTOR (TYPE 3 BEAM PATTERN), TEMPERED FLAT GLASS LENS, 66" LONG TAPERED ALUMINUM ARM. INCLUDE ALL MOUNTING AND CONNECTING ACCESSORIES.	480	LUMINAIRE: G.E. M1SCL-40E-A-1-1-F-MC3-U ARM: GE RBACWH8X2	(1) CDM400/S/U/PS	461	480
B						
C						
D						

NOTES:
1. LAMPS, WHERE AVAILABLE, SHALL PASS THE FEDERAL (EPA) TCLP TEST FOR HAZARDOUS WASTE DETERMINATION.
2. METAL HALIDE LAMPS SHALL BE COLOR CORRECTED, CERAMIC TYPE, PULSE START.
3. CONTRACTOR & LIGHTING FIXTURE SUPPLIER SHALL VERIFY DESCRIPTION, MOUNTING REQUIREMENTS, CATALOG NUMBERS, ETC. MATCH. ADVISE ENGINEER OF ANY CONFLICTS OR DESCREPANCIES.

NORTH

0 4 8
SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ELECTRICAL DETAIL - SOUTH SITE FOAM TANK/CATWALK AREA

SCALE: 1/4"=1'-0"

FINAL BID DOCUMENT

May 14, 2013 - 1:31pm KIM K:\JOBS 1500-1599\1555 POB - Whatcom Waterway Upland Elec Modifications\E-5.dwg

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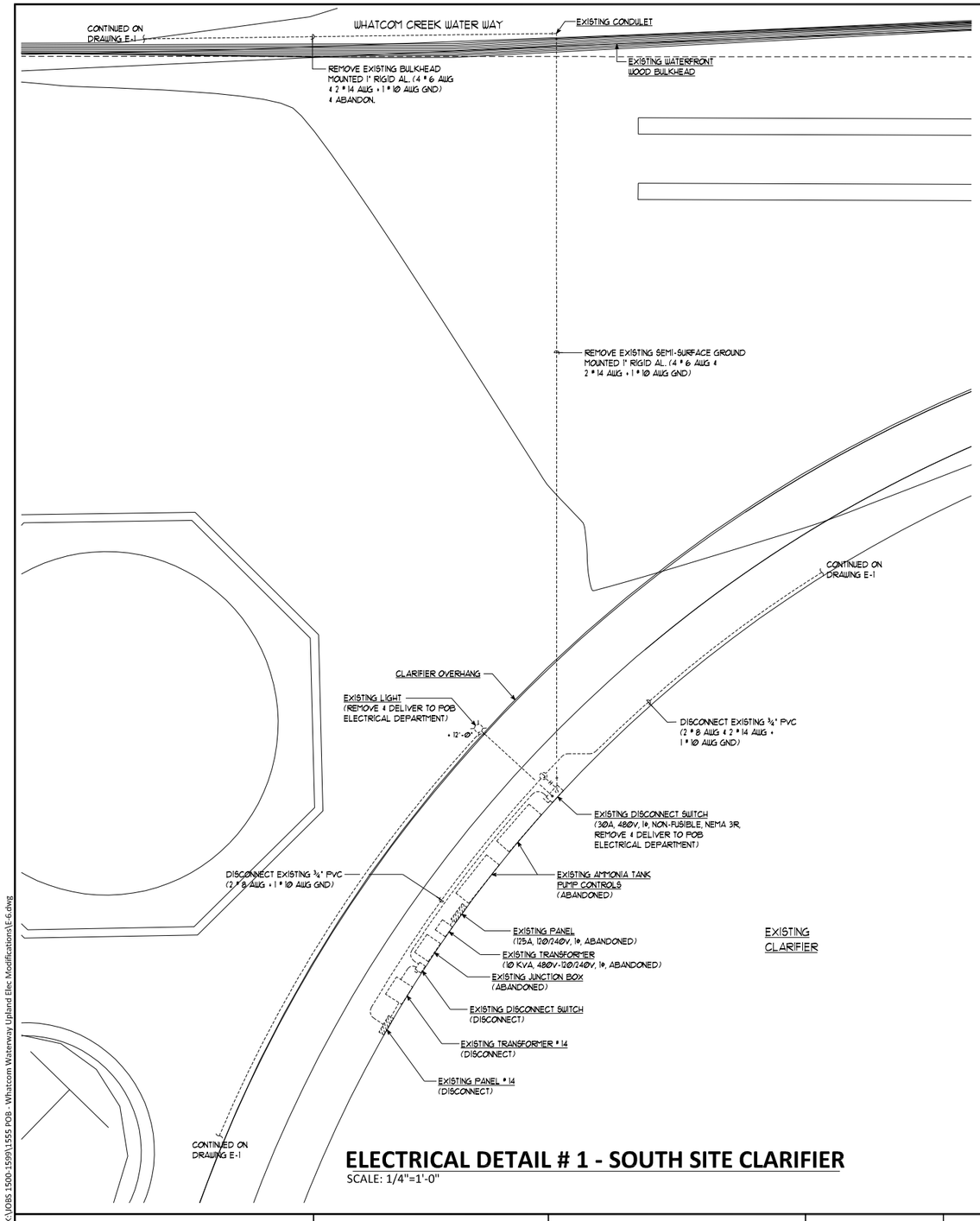
APPROVED BY: S. TEVELDE
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

ELECTRICAL DETAIL - SOUTH SITE FOAM TANK/CATWALK AREA

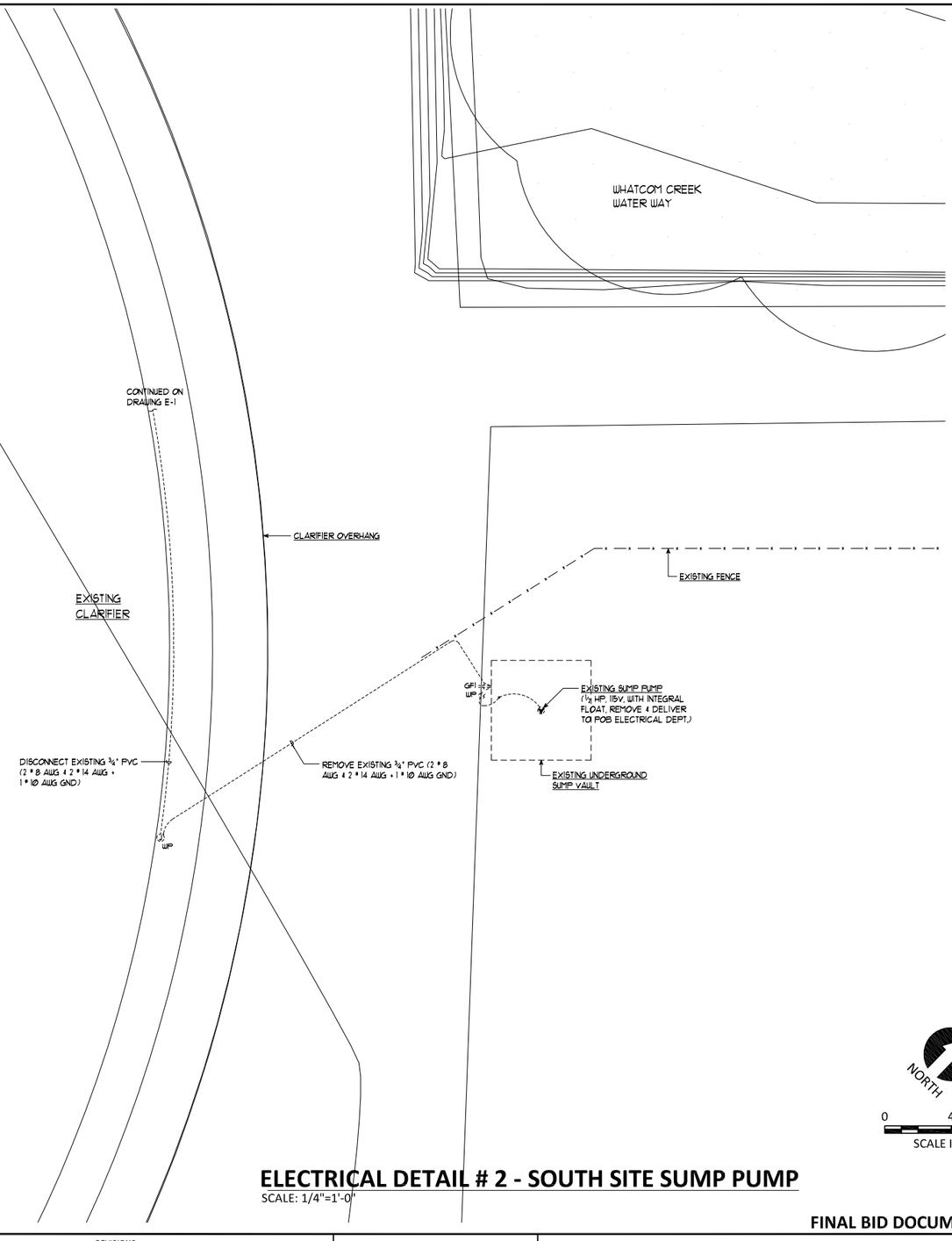
E-5

SHEET NO. 74 OF 104



ELECTRICAL DETAIL # 1 - SOUTH SITE CLARIFIER

SCALE: 1/4"=1'-0"



ELECTRICAL DETAIL # 2 - SOUTH SITE SUMP PUMP

SCALE: 1/4"=1'-0"

NORTH

0 4 8

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

May 14, 2013 - 12:50pm KIM K:\JOBS 1500-1599\1555 POB - Whatcom Waterway Upland Elec Modifications\E-6.dwg

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STEVEN B. TEVELDE — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER — 5/14/13

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: S. TEVELDE
DRAWN BY: K. LANCE
CHECKED BY: S. TEVELDE
APPROVED BY: S. TEVELDE
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

ELECTRICAL DETAILS - SOUTH SITE

E-6

SHEET NO. 75 OF 104

GENERAL:

THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. CONTRACTOR SHALL VERIFY INFORMATION GIVEN HERE WITH SPECIFICATIONS AND OTHER DOCUMENTS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE PORT BEFORE BEGINNING AFFECTED WORK. THE ENGINEER WILL RESOLVE ANY SUCH CONFLICT.

CONTRACTOR SHALL VERIFY ALL LEVELS, DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD BEFORE PROCEEDING. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR FIELD CHANGES PRIOR TO INSTALLATION OR FABRICATION. IN CASE OF DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS THE CONTRACTOR SHALL OBTAIN WRITTEN DIRECTION FROM THE ENGINEER BEFORE PROCEEDING. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS - DO NOT SCALE DRAWINGS.

DESIGN DRAWINGS AND CALCULATIONS OR SHOP DRAWINGS, FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHERS SHALL BEAR THE SEAL AND SIGNATURE OF THE WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER WHO IS RESPONSIBLE FOR THE DESIGN AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. SUBMITTED CALCULATIONS ARE FOR INFORMATION ONLY AND WILL NOT BE STAMPED OR RETURNED.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

NO EXISTING CONDITION ASSESSMENT HAS BEEN PERFORMED TO VERIFY THAT ANY OF THE EXISTING STRUCTURAL ELEMENTS ARE IN GOOD CONDITION OR HAVE THE CAPACITY TO SUPPORT ANY LOADS. THE CONTRACTOR SHALL USE EXISTING STRUCTURES AT THEIR OWN RISK.

CODES AND STANDARDS:

- INTERNATIONAL BUILDING CODE, 2009 (IBC) AS AMENDED BY THE CITY OF BELLINGHAM
- ASCE 7-05, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" AMERICAN SOCIETY OF CIVIL ENGINEERS
- ACI 318-08, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AMERICAN CONCRETE INSTITUTE (ACI).
- STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" 2005.
- SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISC 360-05
- REINFORCED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
- AMERICAN WELDING SOCIETY (AWS): D1.1 STRUCTURAL WELDING CODE - STEEL D1.4 STRUCTURAL WELDING CODE - REINFORCING STEEL

SOILS:

SEE THE GEOTECHNICAL REPORT BY ANCHOR QEA, DATED MAY, 2013 FOR COMPLETE INFORMATION

CONSTRUCTION VERTICAL DATUM:

ALL REFERENCE DATUM IS IN MLLW

JOINT SEALING:

HYDROPHILIC JOINT FILLER FOR SEALING SHEET PILE JOINTS SHALL BE OCM INC. ADEKA ULTRA-SEAL A30 OR EQUAL AND SHALL BE APPLIED PER THE MANUFACTURER'S REQUIREMENTS.

SEAL ALL SHEETS AT EVERY KNUCKLE THAT SPECIFY JOINT SEALING FROM TOP OF WALL TO EL -7 MLLW, UNO. NOTE THAT JOINT SEALANT IS NOT REQUIRED AT EAST CENTRAL WATERFRONT WALL, SEE S-7.

GROUT:

GROUT SHALL BE NON SHRINK, NON METALLIC WITH A MIN COMPRESSIVE STRENGTH OF 5000 PSI.

REINFORCED CONCRETE:

A. CONCRETE MATERIALS:

CONCRETE MIXES SHALL CONFORM TO THE FOLLOWING:

MIX	MIN. f'c (PSI)	TEST AGE (DAYS)	MAX. W/C RATIO
CAST-IN-PLACE CONCRETE	4,000	28	0.40

B. REINFORCING STEEL:

REINFORCING SHALL BE SUPPORTED AS SPECIFIED BY THE PROJECT SPECIFICATIONS AND THE CRSI MANUAL OF STANDARD PRACTICE, MSP-1. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH "ACI MANUAL OF CONCRETE PRACTICE FOR DETAILS AND DETAILING OF CONCRETE REINFORCEMENT," ACI 315.

USE OF MECHANICAL SPLICES SHALL BE SUBJECT TO ENGINEER'S APPROVAL. WHERE DETAILED ON PLANS, MECHANICAL SPLICES SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE SPLICED BARS IN BOTH TENSION AND COMPRESSION.

UNLESS NOTED OTHERWISE, LAP SPLICES SHALL BE CLASS B, CASE 1, PER THE TABLE BELOW. NO MORE THAN 50% OF THE BARS SHALL BE SPLICED AT ANY LOCATION.

TENSION LAP SPLICE LENGTHS OF GRADE 60 UNCOATED BARS - CLASS B, CASE 1		
BAR SIZE	f'c = 4,000 psi	
	TOP BARS	OTHERS
#3	2'-0"	1'-7"
#4	2'-8"	2'-1"
#5	3'-4"	2'-7"
#6	4'-0"	3'-1"
#7	5'-10"	4'-6"
#8	6'-8"	5'-2"
#9	7'-7"	5'-10"
#10	8'-6"	6'-7"
#11	9'-5"	7'-3"
#14	LAP SPLICES NOT ALLOWED	
#18		

TOP BARS ARE DEFINED AS BARS THAT ARE SO PLACED THAT MORE THAN 12" OF FRESH CONCRETE IS CAST BELOW HORIZONTALLY POSITIONED REINFORCEMENT.

STRUCTURAL STEEL FABRICATIONS:

A. STEEL MATERIALS:

CHANNELS, ANGLES, PLATES, BARS, AND MISC. STEEL	- ASTM A 36, UNO
STEEL SHAPES	- ASTM A 992, GR50
7-WIRE STRAND	- ASTM A 416, GR 270
THREADED TIE ROD	- ASTM A 722, GR 150
SHEET PILING	- ASTM A 572 GR50
SHEET PILE CONNECTORS	- PER MANUFACTURER
STEEL PIPE PILE	- ASTM A 252, GR3, 45KSI
HEADED STUDS	- A108
HSS TUBES	- A500 GR B
BOLTS	- ASTM A325, UNO

B. METAL FABRICATION:

ALL METAL FABRICATIONS EXCEPT FOR SHEET PILES OR UNLESS OTHERWISE NOTED SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN COMPLIANCE WITH ASTM A 123 GR 100. ALL GALVANIZING AT FIELD WELDS AND WHERE THE ORIGINAL COATING IS DAMAGED SHALL BE REPAIRED ACCORDING TO ASTM A 780, METHOD A1 USING ZINC WELD STICK.

C. STEEL SHEET PILES:

ALL STEEL PILING SHALL BE PROVIDED BY THE CONTRACTOR. STEEL SHEET PILING SHALL BE DRIVEN TO THE MINIMUM TIP ELEVATION SHOWN ON THE PLANS. SEE SPECIFICATION 31 41 16.13 FOR ADDITIONAL INFORMATION.

CONTROL DENSITY FILL (CDF):

VOID GROUTING SHALL BE CDF IN ACCORDANCE WITH SPECIFICATION 03 30 00. CDF SHALL HAVE A 28-DAY UNCONFINED COMPRESSIVE STRENGTH OF 300 PSI, MIN.

WELDING:

ALL WELDING SHALL BE PERFORMED BY WELDERS QUALIFIED FOR THE WELDING AND POSITION SHOWN IN ACCORDANCE WITH AWS AND HAVING CURRENT CERTIFICATION FROM WABO.

ALL WELDS SHALL BE PERFORMED WITH PROCEDURES PREQUALIFIED OR QUALIFIED IN ACCORDANCE WITH AWS D1.1 AND D1.4.

THE WELDS SHOWN ARE FOR THE FINAL CONNECTIONS. FIELD WELD SYMBOLS ARE SHOWN WHERE FIELD WELDS ARE REQUIRED BY THE STRUCTURAL DESIGN.

WELDING ELECTRODES SHALL BE 70 KSI STRENGTH AND SHALL BE "LOW-HYDROGEN" ELECTRODES.

TIEBACK TESTING:

A. PERFORMANCE TESTING: PRIOR TO INSTALLING PRODUCTION TIEBACKS, A MINIMUM OF FOUR SUCCESSFUL PERFORMANCE TESTS SHALL BE CONDUCTED ON TIEBACKS PER SPECIFICATION 31 68.13. THE TEST TIEBACKS SHALL BE INSTALLED BY THE SAME METHODS, PERSONNEL, MATERIALS, AND EQUIPMENT AS THE PRODUCTION ANCHORS. CHANGES IN METHODS. PERSONNEL, MATERIALS, OR EQUIPMENT MAY REQUIRE ADDITIONAL PERFORMANCE TESTING AS DETERMINED BY THE RESIDENT ENGINEER.

B. PROOF TESTING: PROOF TESTS SHALL BE COMPLETED ON EACH PRODUCTION TIEBACK PER SPECIFICATION 31 68 13.

CORRISON:

THE CORRISON RATE IN THE TIDAL ZONE WAS ASSUMED TO BE 2.5 MILS OF LOSS ON EXPOSED STEEL EACH YEAR.

COMPOSITE LUMBER:

COMPOSITE LUMBER SHALL BE AXION ECOTRAX COMPOSITE RAILROAD CROSS TIES OR EQUAL. MIN 75% OF THE PHYSICAL PROPERTIES RETAINED AFTER 15 YEARS. SEE SPEC 35 59 13.19

UHMW AND HDPE:

SHALL BE MANUFACTURED FROM VIRGIN RESIN BLACK IN COLOR. SEE SPECS FOR ADDITIONAL REQUIREMENTS

DESIGN LOADS & CRITERIA:

A. STEEL PILE DOLPHINS:

THE STEEL MONOPILE DOLPHINS ARE DESIGNED TO BERTH A 5000 LONG TON BARGE AT MODERATE BERTHING SPEED OF 0.45 KNOTS NORMAL TO THE SHORELINE. WITH A RECOMMENDED MAXIMUM BERTHING ANGLE OF 20° THE MAXIMUM ALLOWED VESSEL VELOCITY IS 1.3 KNOTS.

B. MAPLE ST. FENDERING SYSTEM:

THE FENDER SYSTEM IS DESIGNED TO BERTH A 5000 LONG TON BARGE AT MODERATE BERTHING SPEED OF 0.45 KNOTS NORMAL TO THE BULKHEAD. WITH A RECOMMENDED MAXIMUM BERTHING ANGLE OF 10° THE MAXIMUM ALLOWED VESSEL VELOCITY IS 2.5 KNOTS. THE ROPE GUARD IS DESIGNED FOR A 2 KIP VERTICAL FORCE AT MIDSPAN BETWEEN THE FENDER PILES.

C. BULLRAIL:

THE BULLRAIL IS DESIGNED FOR A VERTICAL OR HORIZONTAL FORCE OF 1 KIP BETWEEN SUPPORTS

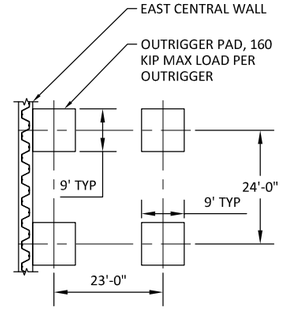
D. MOORING CLEATS

CLEATS ARE DESIGNED FOR A 25 TON LINE LOAD BETWEEN 0-180 DEGREES HORIZONTAL PARALLEL WITH THE WALL AND 0-45 DEGREES VERTICAL.

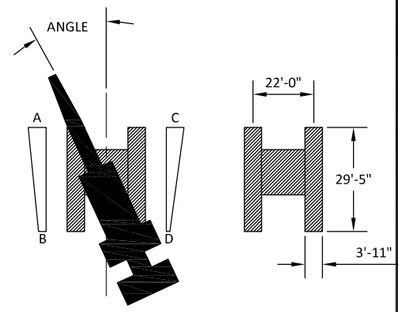
E. SHEET PILE WALLS:

ALL NEW SHEET PILE WALL ELEMENTS HAVE BEEN DESIGNED FOR THE FOLLOWING CONDITIONS:

1. WEST CENTRAL WATERFRONT WALL HAS BEEN DESIGNED FOR THE FOLLOWING CONDITIONS:
   - TEMPORARY CONSTRUCTION CONDITIONS LISTED IN THESE DESIGN DOCUMENTS WITH A MAXIMUM CONSTRUCTION SURCHARGE OF 250 PSF.
   - A VERTICAL LIVE LOAD SURCHARGE OF 500 PSF IN THE FINAL CONDITION.
   - SEISMIC LOADING PER IBC CODE REQUIREMENTS IN THE FINAL CONDITION.
   - A MINIMUM OF A 50 YEAR DESIGN LIFE AT AN ASSUMED SEAWATER STEEL CORROSION RATE WHICH RESULTS IN A 30% LOSS IN SECTION.
   - 1000 PSF VERTICAL LIVE LOAD SURCHARGE OFFSET 15 FEET FROM THE WALL.
2. EAST CENTRAL WATERFRONT WALL HAS BEEN DESIGNED FOR THE FOLLOWING CONDITIONS:
   - TEMPORARY CONSTRUCTION CONDITIONS LISTED IN THESE DESIGN DOCUMENTS WITH A MAXIMUM CONSTRUCTION SURCHARGE OF 250 PSF.
   - A VERTICAL LIVE LOAD SURCHARGE OF 1000 PSF IN THE FINAL CONDITION.
   - SEISMIC LOADING PER IBC CODE REQUIREMENTS IN THE FINAL CONDITION.
   - A MINIMUM OF A 50 YEAR DESIGN LIFE AT AN ASSUMED SEAWATER STEEL CORROSION RATE WHICH RESULTS IN A 20% LOSS IN SECTION.
   - EAST CENTRAL DESIGN CRANE ON 9x9 FEET OUTRIGGER PADS ADJACENT TO THE WALL. EACH PAD HAS BEEN DESIGNED TO MAXIMUM OUTRIGGER LOAD OF 160 KIP. SEE SKETCH THIS SHEET
3. MAPLE STREET BULKHEAD HAS BEEN DESIGNED FOR THE FOLLOWING CONDITIONS:
   - TEMPORARY CONSTRUCTION CONDITIONS LISTED IN THESE DESIGN DOCUMENTS WITH A MAXIMUM CONSTRUCTION SURCHARGE OF 250 PSF.
   - DRILL RIG LOAD DURING CONSTRUCTION - 32,000 LB DISTRIBUTED OVER 10.8x10.8 FT SQUARE AREA.
   - A VERTICAL LIVE LOAD SURCHARGE OF 250 PSF IN THE FINAL CONDITION.
   - SEISMIC LOADING PER IBC CODE REQUIREMENTS IN THE FINAL CONDITION.
   - A MINIMUM OF A 50 YEAR DESIGN LIFE AT AN ASSUMED SEAWATER STEEL CORROSION RATE WHICH RESULTS IN A 20% LOSS IN SECTION.
   - MOBILE CRANE ON THE WEST END. SEE DRAWING S-7 FOR ALLOWABLE CRANE LOCATION.



EAST CENTRAL CRANE PAD DESIGN LOADS



CRANE LOADING TABLE

ANGLE	A	B	C	D
0°	65.0 psi	1.1 psi	65.0 psi	1.1 psi
23°	67.7 psi	8.8 psi	57.3 psi	0.0 psi
90°	46.3 psi	46.3 psi	19.8 psi	19.8 psi
TOTAL LOAD TO TRACKS - 1000 kips				

MAPLE ST. MOBILE CRANE DESIGN LOADS

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

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REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: EDE
DRAWN BY: GMC
CHECKED BY: TAH
APPROVED BY: RHR
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

GENERAL STRUCTURAL NOTES

S-1

SHEET NO. 76 OF 104

SPECIAL INSPECTION SCHEDULE ESTABLISHED PER 2009 IBC SECTION 109 & CHAPTER 17			
ITEM	CONTINUOUS INSPECTION	PERIODIC INSPECTION	COMMENTS
SOILS			
GRADING, EXCAVATION & FILL		X	BY GEOTECHNICAL ENGINEER
FINAL FOUNDATION PREPARATION		X	BY GEOTECHNICAL ENGINEER
PILING - DRIVING	X		BY GEOTECHNICAL ENGINEER
CONCRETE			
REINFORCING PLACEMENT		X	
REINFORCING WELDING		X	
REINFORCING COUPLING		X	
PREPARATION OF TEST SPECIMENS	X		
CONCRETE PLACEMENT	X		
EMBEDDED PLATES		X	
CURING		X	
STRUCTURAL STEEL			
FABRICATION & ERECTION		X	REF. NOTE 5
SINGLE PASS FILLET WELDS ≤ 5/16"		X	REF. NOTE 6
FILLET WELDS > 5/16"	X		REF. NOTE 6
PARTIAL/COMPLETE PENETRATION WELD	X		REF. NOTE 7
OTHER WELDING			
WELDING OF ANCHORS AND STUDS		X	

INSPECTION SCHEDULE NOTES:

1. THE ITEMS CHECKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17 BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY. FOR MATERIAL SAMPLING AND TESTING REQUIREMENTS, REFER TO PROJECT SPECIFICATIONS, THE STRUCTURAL NOTES AND THE NOTES BELOW. THE TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE ENGINEER, CONTRACTOR, AND BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER. SPECIAL INSPECTION TESTING REQUIREMENTS APPLY EQUALLY TO ALL BIDDER DESIGNED COMPONENTS.

2. SPECIAL INSPECTION IS NOT REQUIRED FOR WORK PERFORMED BY AN APPROVED FABRICATOR PER IBC SECTION 1704.2.2.

3. CONTINUOUS SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON THE SITE AT ALL TIMES OBSERVING THE WORK REQUIRING SPECIAL INSPECTION (IBC 1702). PERIODIC SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON SITE AT TIME INTERVALS NECESSARY TO CONFIRM THAT ALL WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE.

4. INSPECTION REQUIREMENTS FOR SYSTEMS DESIGNED BY OTHERS SHALL BE DEFINED BY THE REGISTERED DESIGN PROFESSIONAL RESPONSIBLE FOR THEIR DESIGN.

5. INSPECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH IBC SECTION 1704.3. THE STEEL FRAME SHALL BE INSPECTED FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS INCLUDING BRACING, STIFFENING, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

6. ALL WELDS SHALL BE VISUALLY INSPECTED.

7. ALL COMPLETE PENETRATION WELDS SHALL BE TESTED ULTRASONICALLY OR BY USING ANOTHER APPROVED METHOD.

ABBREVIATIONS:

AB	ANCHOR BOLT
ACP	ASPHALT CONCRETE PAVEMENT
ADD'L	ADDITIONAL
ADJ	ADJUSTABLE
AGG	AGGREGATE
ANCH	ANCHOR
B/	BOTTOM OF
BLDG	BUILDING
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BTWN	BETWEEN
CC	CENTER TO CENTER
CIP	CAST IN PLACE
CJ	CONSTRUCTION OR CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CP	COMPLETE PENETRATION
CTR	CENTER
CY	CUBIC YARD
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DEMO	DEMOLISH
DEMO'D	DEMOLISHED
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DO	DITTO
DN	DOWN
DWF	DEFORMED WIRE FABRIC
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EHW	EXTREME HIGH WATER
ELW	EXTREME LOW WATER
EL	ELEVATION
ELECT	ELECTRICAL
ELEV	ELEVATOR
EMBED	EMBEDMENT
EQ	EQUAL
ES	EACH SIDE
EW	EACH WAY
EX, EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FD	FLOOR DRAIN
FDN	FOUNDATION
FIN	FINISH
FLG	FLANGE
FLR	FLOOR
FRP	FIBRE-REINFORCED PLASTIC
FS	FAR SIDE
FT	FEET
FTG	FOOTING
GA	GAGE
GALV	GALVANIZED
GEN	GENERAL
HGR	HANGER HK HOOK
HORIZ	HORIZONTAL
HP	HIGH POINT
HSS	HOLLOW STRUCTURAL SECTION
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INT	INTERIOR
JT	JOINT K KIP (1,000 LBS.)
KSF	KIPS PER SQ. FT.
KSI	KIPS PER SQ. INCH
LF	LINEAL FOOT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION ('S)
LP	LOW POINT
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MHW	MEAN HIGH WATER
MLW	MEAN LOW WATER
MIN	MINIMUM
MISC	MISCELLANEOUS
MOM	MOMENT
NIC	NOT IN CONTRACT
NOM	NOMINAL
NO	NUMBER
NS	NEAR SIDE, NONSHRINK
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG	OPENING
OPP	OPPOSITE
PC	PIECE
PEN	PENETRATION
PL	PLATE, PROPERTY LINE
PP	PARTIAL PENETRATION
PSI	POUNDS PER SQ. IN.
PSF	POUNDS PER SQ. FT.
RD	ROOF DRAIN
REF	REFERENCE DIMENSION
REINF	REINFORCING
REM	REMAIN (DER)
REQ'D	REQUIRED
RTN	RETURN
RND	ROUND
RS	ROUGH SAWN LUMBER
SC	SLIP CRITICAL
SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SOG	SLAB-ON-GRADE
SP	SPACE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STIRR	STIRRUP
STL	STEEL
STRUCT	STRUCTURAL
SUPP	SUPPORT
SYM	SYMMETRICAL
T/	TOP OF
T&B	TOP AND BOTTOM
TEMP	TEMPORARY
THK	THICK (NESS)
THRU	THROUGH
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
WF	WIDE FLANGE
WHS	WELDED HEADED STUD
W/O	WITHOUT
WP	WORK POINT
WT	STRUCTURAL TEE
WWF	WELDED WIRE FABRIC

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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CHECKED BY: TAH
APPROVED BY: RHR
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

GENERAL STRUCTURAL NOTES, ABBREVIATIONS & SYMBOLS

S-2

SHEET NO. 77 OF 104

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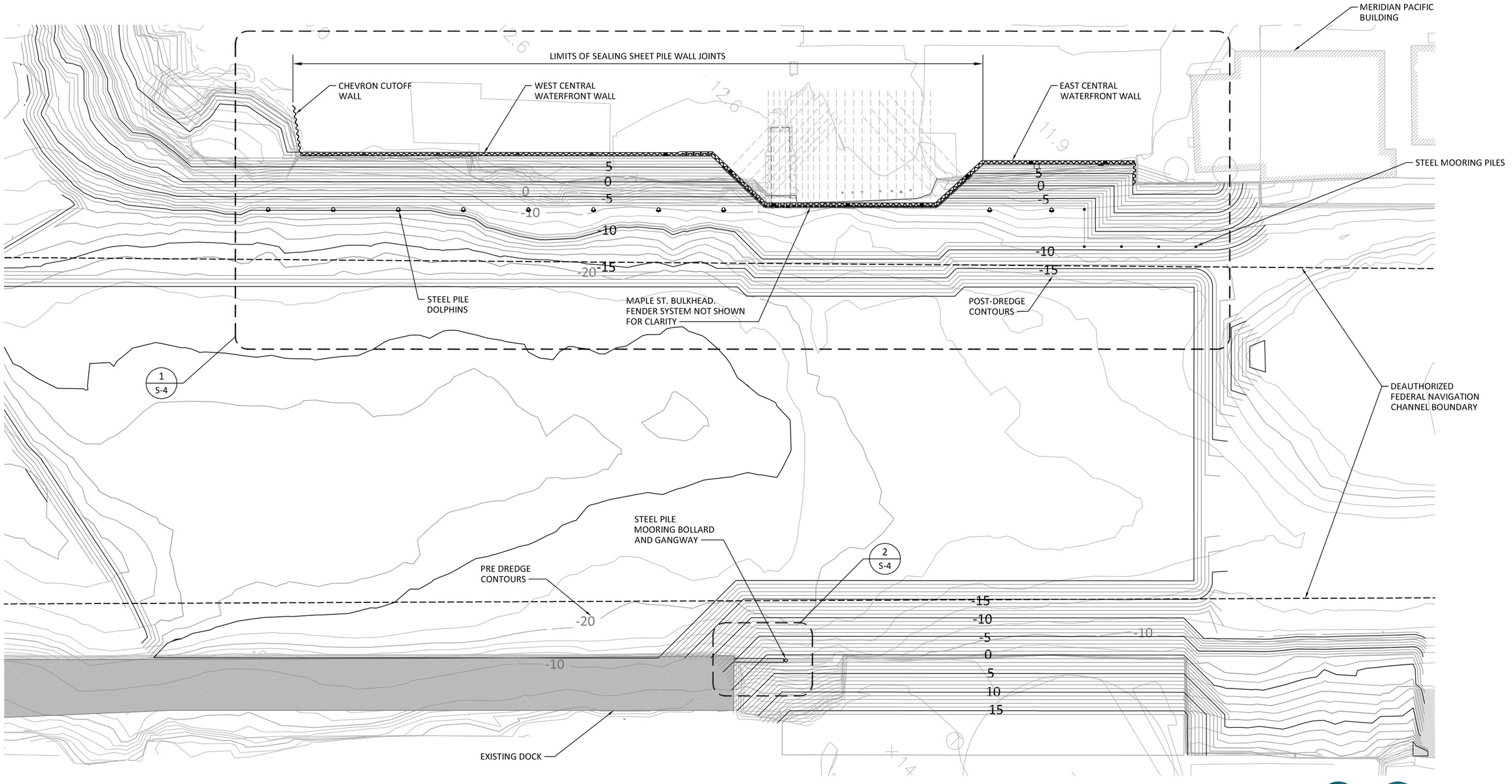

OVERALL PLAN

SCALE: 1"=40'

FINAL BID DOCUMENT

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WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

OVERALL PLAN

S-3

SHEET NO. 78 OF 104

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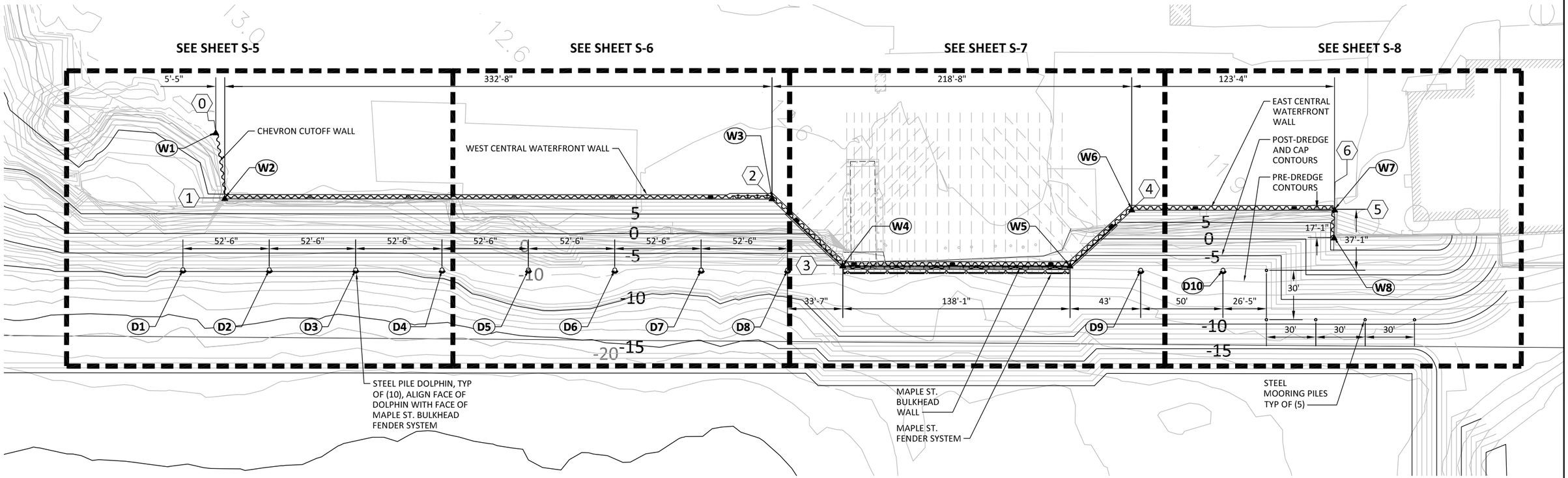


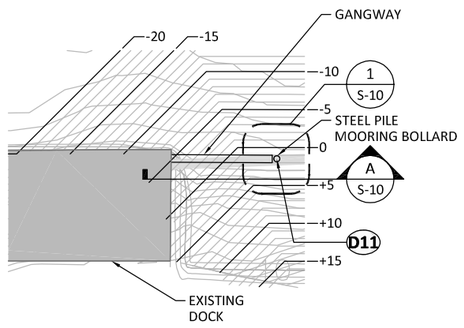
DOLPHIN CENTER OF PILE LOCATION

CP #	NORTHING	EASTING
D1	642,809.05	1,241,051.98
D2	642,845.64	1,241,089.63
D3	642,882.20	1,241,127.31
D4	642,918.75	1,241,165.00
D5	642,955.30	1,241,202.68
D6	642,991.86	1,241,240.36
D7	643,028.41	1,241,278.05
D8	643,064.96	1,241,315.73
D9	643,214.43	1,241,469.83
D10	643,249.25	1,241,505.72
D11	642,838.69	1,241,605.54

NOTE:

1. SEE B / S-29.

1 / S-3 NORTH SHORELINE STRUCTURAL PLAN
SCALE: 1" = 30'



2 / S-3 SOUTH SHORELINE BOLLARD PLAN
SCALE: 1" = 30'

SHEET PILE WALL CONTROL POINT LOCATIONS

CP #	NORTHING	EASTING
W1	642,882.85	1,241,008.12
W2	642,858.05	1,241,039.83
W3	643,089.67	1,241,278.58
W4	643,090.33	1,241,337.88
W5	643,186.48	1,241,437.01
W6	643,237.17	1,241,440.10
W7	643,323.05	1,241,528.60
W8	643,310.56	1,241,540.26

NORTH
PROJECT NORTH
0 30 60
SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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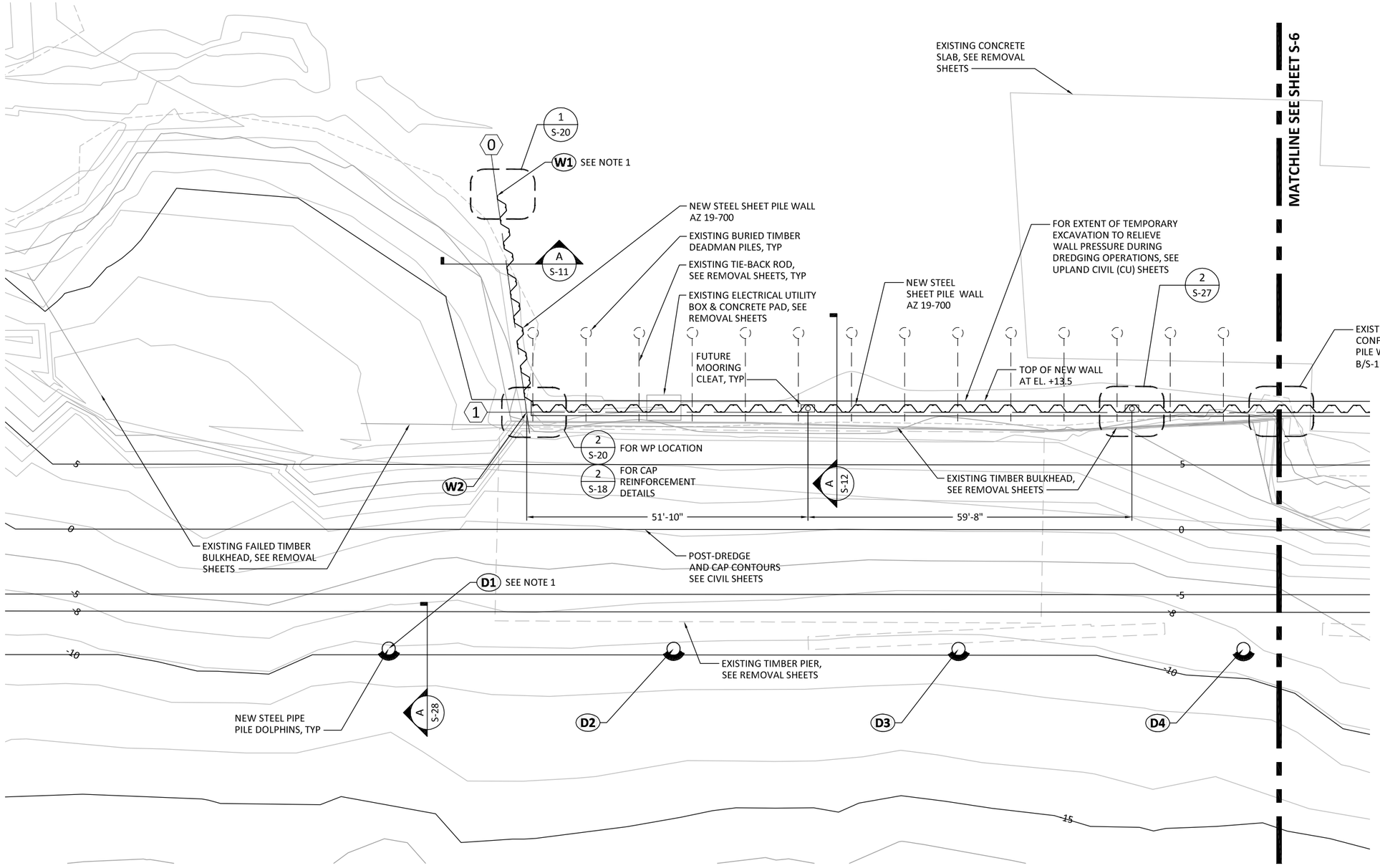
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

EAST WATERWAY SHORELINE STRUCTURAL PLAN

S-4

SHEET NO. 79 OF 104

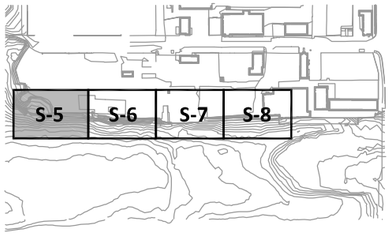


LEGEND:

- 30" MONOPILE DOLPHIN, SEE SHEET S-28
- FUTURE MOORING CLEAT, SEE 2/S-27

NOTES:

1. REFER TO SHEET S-4 FOR HORIZONTAL CONTROL POINT LOCATIONS.
2. REFER TO S-13 AND REMOVAL DRAWINGS FOR CONSTRUCTION SEQUENCING INFORMATION.
3. REMOVE EXISTING TIMBER BULKHEAD AS NECESSARY TO INSTALL SHEET PILE TO TIP ELEVATION. SEE SHEET R-16 FOR ADDITIONAL SEQUENCING INFORMATION.



KEY PLAN

WEST CENTRAL WATERFRONT WALL PLAN - 1

SCALE: 1"=10'

NORTH

PROJECT NORTH

0 10 20

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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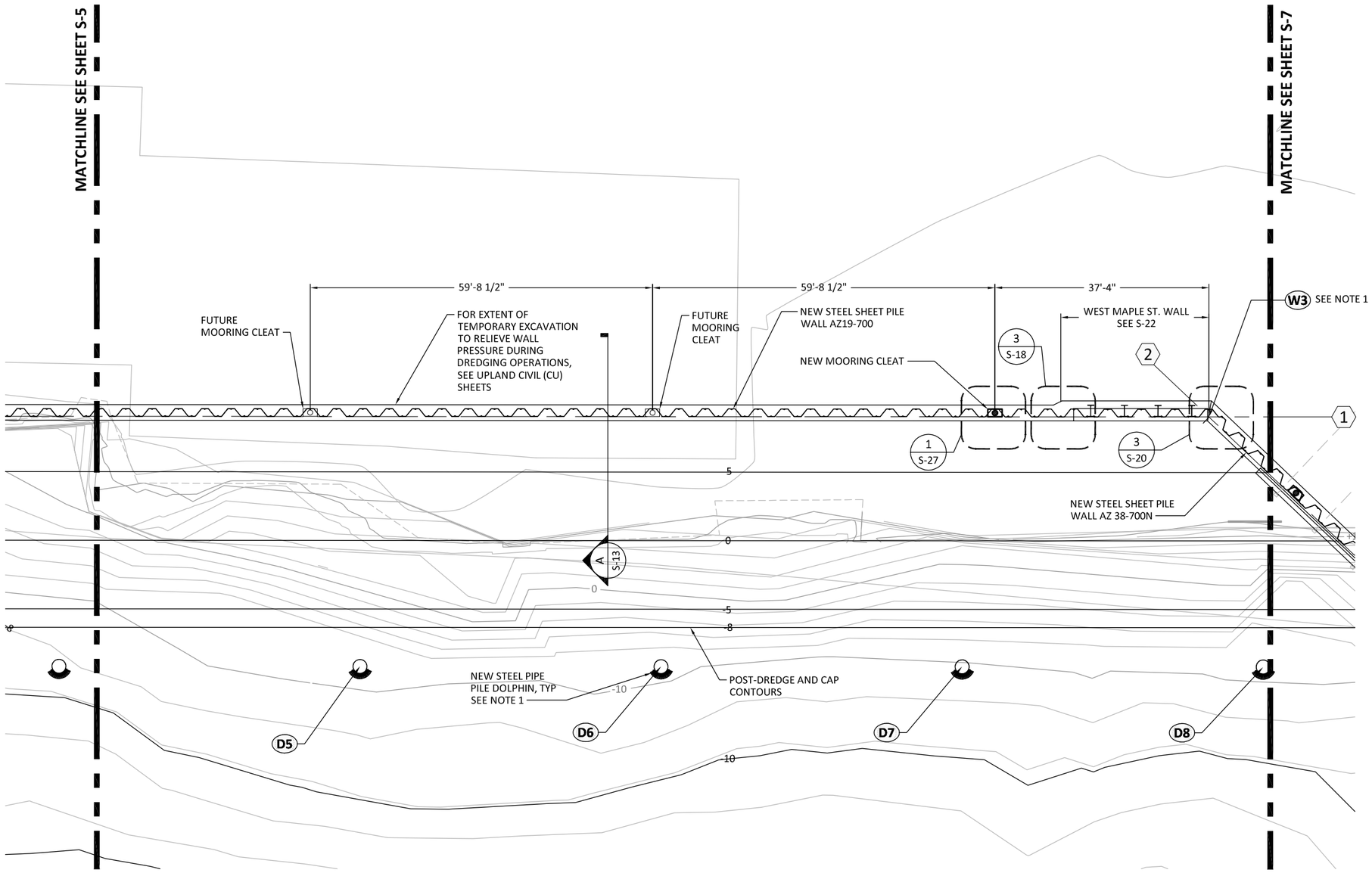
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

WEST CENTRAL WATERFRONT WALL PLAN - 1

S-5

SHEET NO. 80 OF 104



LEGEND:

- 30" MONOPILE DOLPHIN, SEE SHEET S-28
- NEW MOORING CLEAT, SEE 1/S-27
- FUTURE MOORING CLEAT, SEE 2/S-27

NOTES:

1. SEE S-4 FOR HORIZONTAL CONTROL POINT LOCATIONS
2. REFER TO S-13 & REMOVAL DRAWINGS FOR CONSTRUCTION SEQUENCING INFORMATION

KEY PLAN

NORTH

PROJECT NORTH

0 10 20

SCALE IN FEET

WEST CENTRAL WATERFRONT WALL PLAN - 2

SCALE: 1"=10'

ONE INCH AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

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WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

WEST CENTRAL WATERFRONT WALL PLAN - 2

S-6

SHEET NO. 81 OF 104

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MATCHLINE SEE SHEET S-6

MATCHLINE SEE SHEET S-8

EXISTING RAMP HYDRAULIC SHED SEE REMOVAL DRAWINGS

NEW TIEBACK ANCHOR, TYP, W/ PTI CLASS 1 CORROSION PROTECTION OR EQUAL

NEW MAPLE ST. ALLOWABLE CRANE OPERATION AREA

NEW STEEL SHEET PILE WALL AZ 38-700N

NEW STEEL SHEET PILE WALL AZ38-700N

44'-0"

40'-0"

20'-2"

40'-10"

43°

2 EQ SPACES 18'-4"

6'-11"

3 EQ SPACES 13'-9"

2'-5"

2'-5"

9 EQ SPACES 41'-4"

13 EQ SPACES 89'-7"

7'

60'

60'

40'-0"

10' MINIMUM

16'-3"

34'-2"

42°

3 EQ SPACES 27'-7"

4'-8"

EXISTING STEEL CLEATS, TYP SEE REMOVAL DRAWINGS

EXISTING CONCRETE EDGE

APPROXIMATE LOCATION OF EXISTING H-PILES

W4 SEE NOTE 1

W5

W6

NEW MAPLE ST. BULKHEAD WALL

EXISTING CONCRETE BULKHEAD WALL, SEE NOTE 4

NEW MOORING CLEAT, TYP

NEW STEEL PIPE PILE DOLPHINS

D9

NEW STEEL SHEET PILE WALL AZ 38-700N

FENDER SYSTEM NOT SHOWN FOR CLARITY SEE S23

TIEBACK DIMENSIONAL INFO, TYP

A S-14 SIM

A S-14 TYP

1 2 3 4 5 6 S-20

MAPLE ST. BULKHEAD WALL PLAN

SCALE: 1"=10'

LEGEND:

30" MONOPILE DOLPHIN, SEE SHEET S-28

NEW MOORING CLEAT, SEE 1/S-27

NOTES:

1. SEE S-4 FOR HORIZONTAL CONTROL POINT LOCATIONS.
2. SEE DRAWING S-9 FOR ADDITIONAL INFORMATION.
3. JOINT SEALANT NOT REQUIRED EAST OF W6
4. CAPACITY OF EXISTING CONCRETE WALL UNKNOWN. SEE S-1 FOR DETAILS.

KEY PLAN

NORTH

PROJECT NORTH

0 10 20

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

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CHECKED BY: TAH
APPROVED BY: RHR
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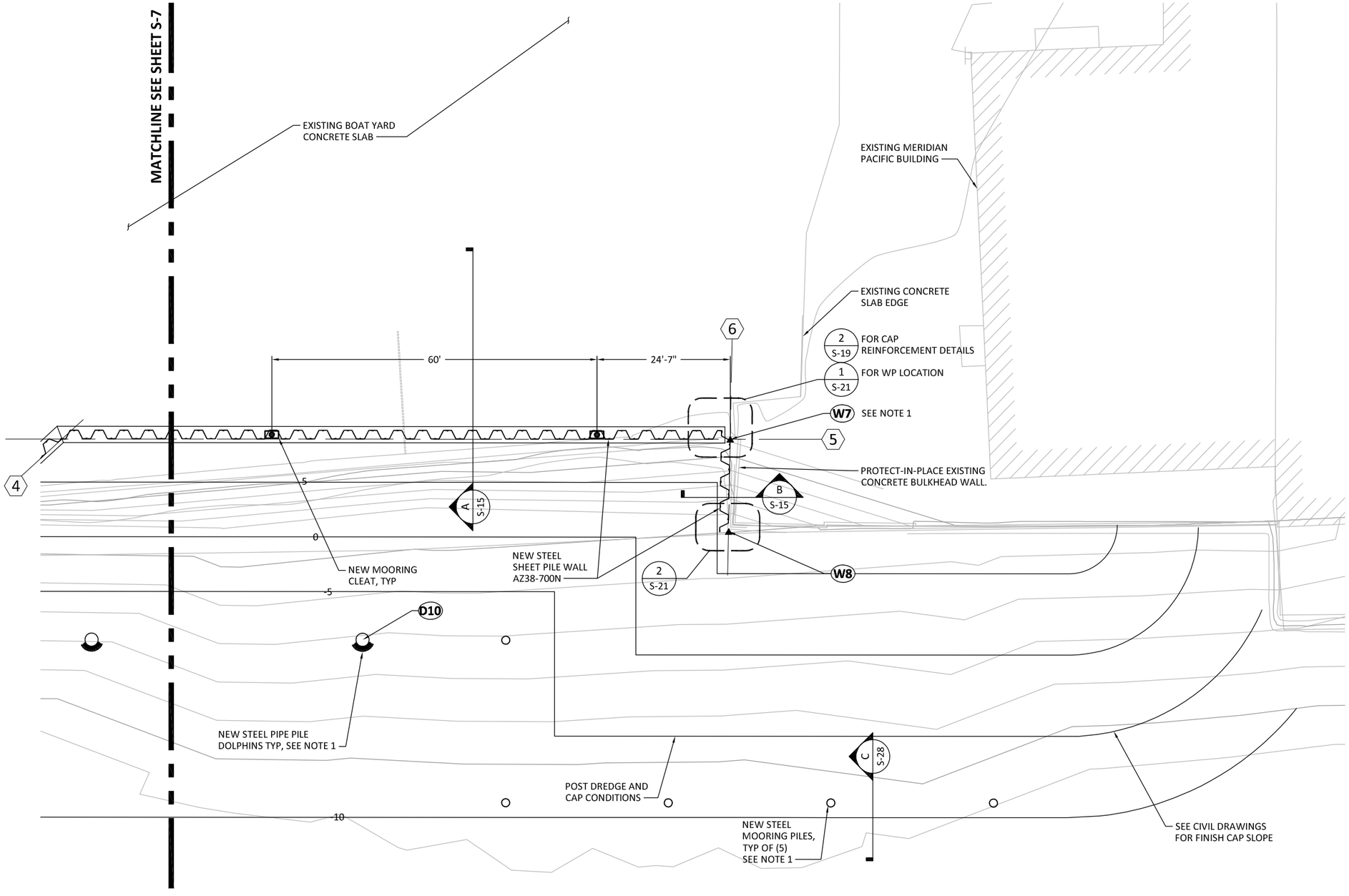
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

MAPLE ST. BULKHEAD WALL PLAN

S-7

SHEET NO. 82 OF 104



LEGEND:

- 30" MONOPILE DOLPHIN, SEE SHEET S-28
- NEW MOORING CLEAT, SEE 1/S-27
- 18" STEEL MOORING PILES, SEE C/S-28

NOTES:

1. SEE S-4 FOR HORIZONTAL CONTROL POINT LOCATIONS.

KEY PLAN

NORTH

PROJECT NORTH

0 10 20

SCALE IN FEET

EAST CENTRAL WATERFRONT WALL PLAN

SCALE: 1"=10'

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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ROBERT H. RILEY STATE OF WASHINGTON 33939 PROFESSIONAL ENGINEER

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CHECKED BY: TAH
APPROVED BY: RHR
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DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

EAST CENTRAL WATERFRONT WALL PLAN

S-8

SHEET NO. 83 OF 104

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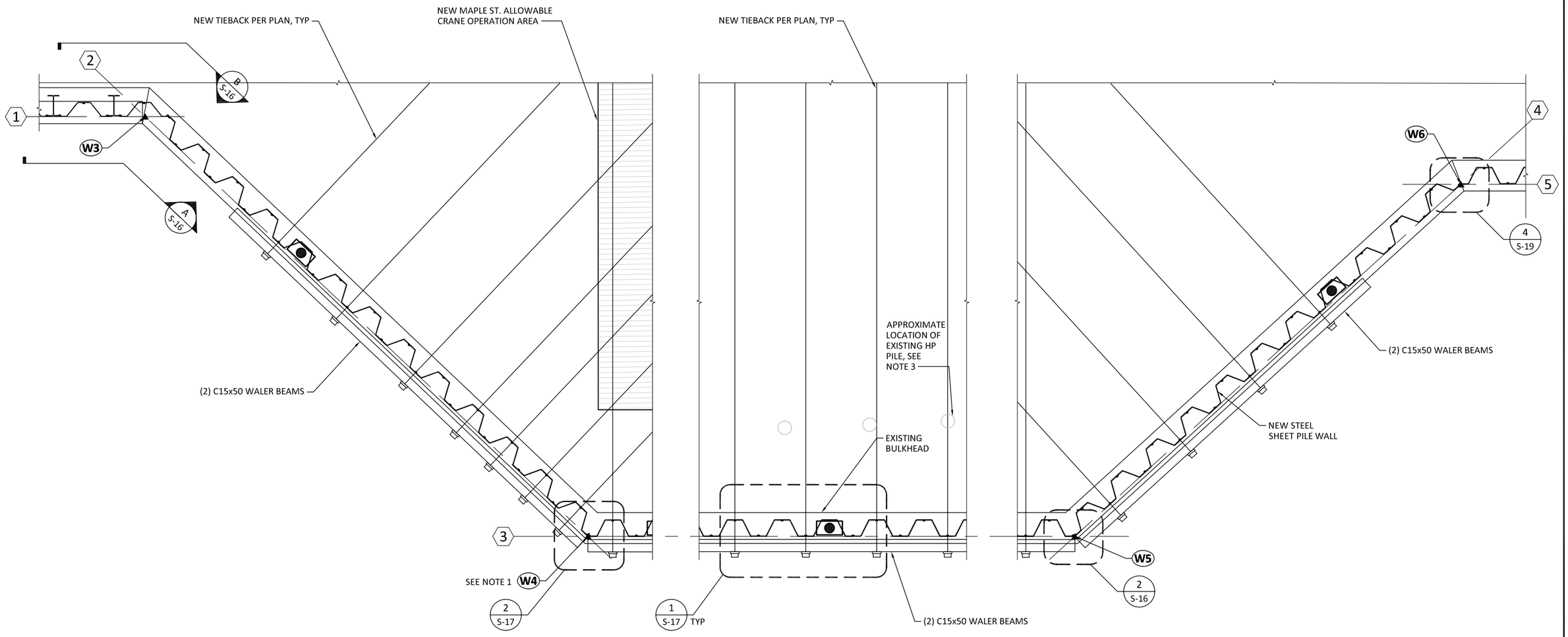

MAPLE ST. BULKHEAD WALL PLAN

SCALE: 1/4"=1'-0"

NOTES:

1. SEE S-4 FOR HORIZONTAL CONTROL POINT LOCATIONS.
2. WALER BEAMS AND ANCHOR CONNECTIONS ARE SHOWN IN TOP VIEW FOR CLARITY.
3. CONTRACTOR IS RESPONSIBLE TO LOCATE EXISTING HP PILES AND AVOID DURING TIEBACK INSTALLATION.
4. 8" HORIZONTAL TOLERANCE AT THE FACE OF THE WALL IS ALLOWED DURING TIEBACK INSTALLATION TO AVOID EXISTING HP PILES.
5. FENDER SYSTEM NOT SHOWN.

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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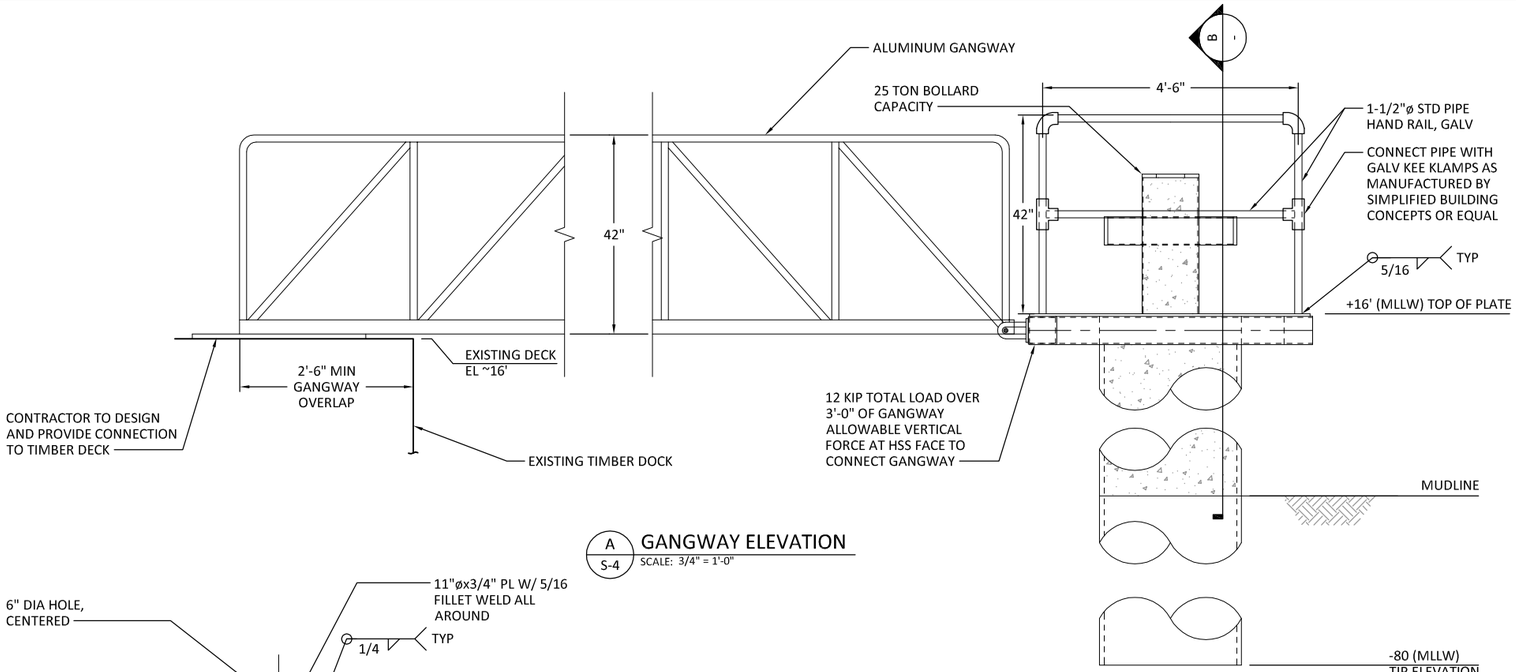
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

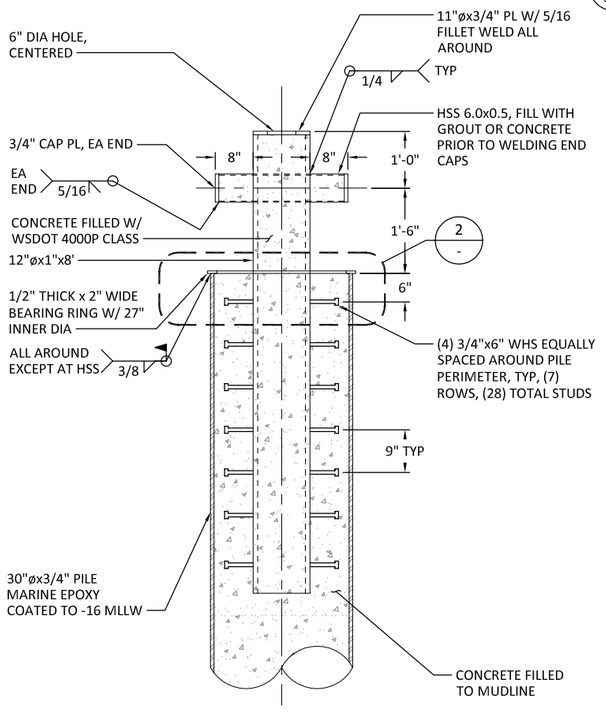
MAPLE ST. BULKHEAD WALL PLAN

S-9

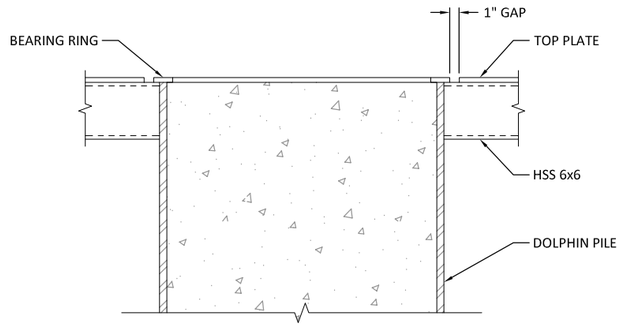
SHEET NO. 84 OF 104



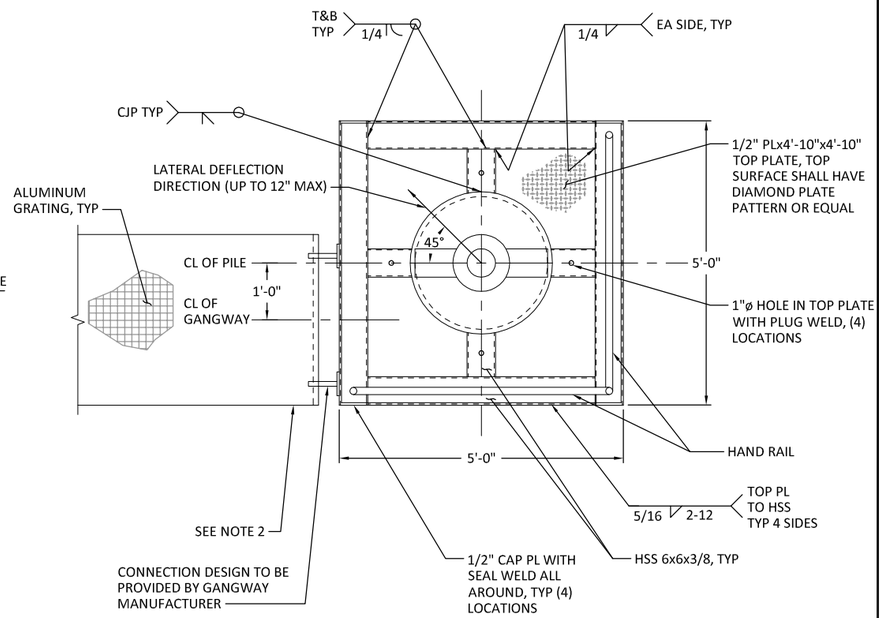
A S-4 GANGWAY ELEVATION
SCALE: 3/4" = 1'-0"



B - SECTION
SCALE: 3/4" = 1'-0"



2 - DETAIL
SCALE: 1-1/2" = 1'-0"



1 S-4 MOORING BOLLARD PLATFORM PLAN
SCALE: 3/4" = 1'-0"

NOTE:

1. ALL BARE STEEL SHALL BE MARINE EPOXY COATED.
2. BIDDER DESIGNED AND INSTALLED 3'-0" WIDE CLEAR x 40'-0" LONG MINIMUM ALUMINUM GANGWAY, 50 PSF UNIFORM DESIGN LIVE LOAD CAPACITY, AND HARDWARE CONNECTIONS TO ALLOW FOR THE MOORING PILE AND PLATFORM TO DEFLECT 12" IN THE DIRECTION INDICATED ON PLAN. ALL STRUCTURAL ALUMINUM SHALL BE ALLOY 6061-T6 PER ASTM B308 & WELDED PER AWS D1.2

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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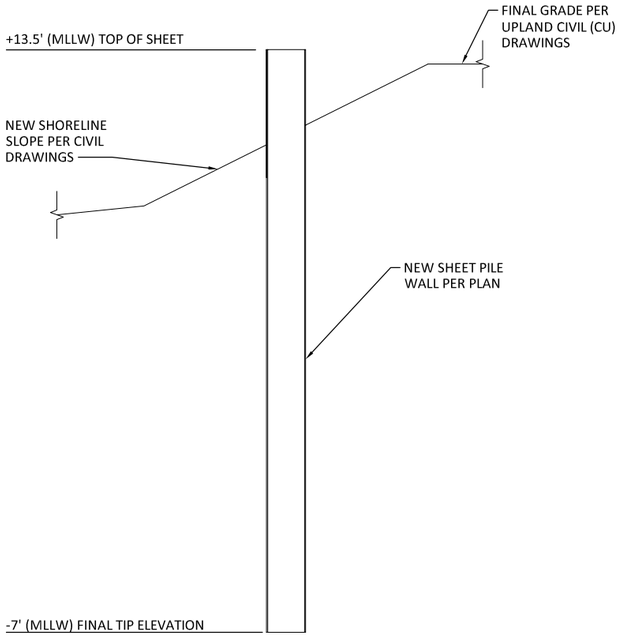
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

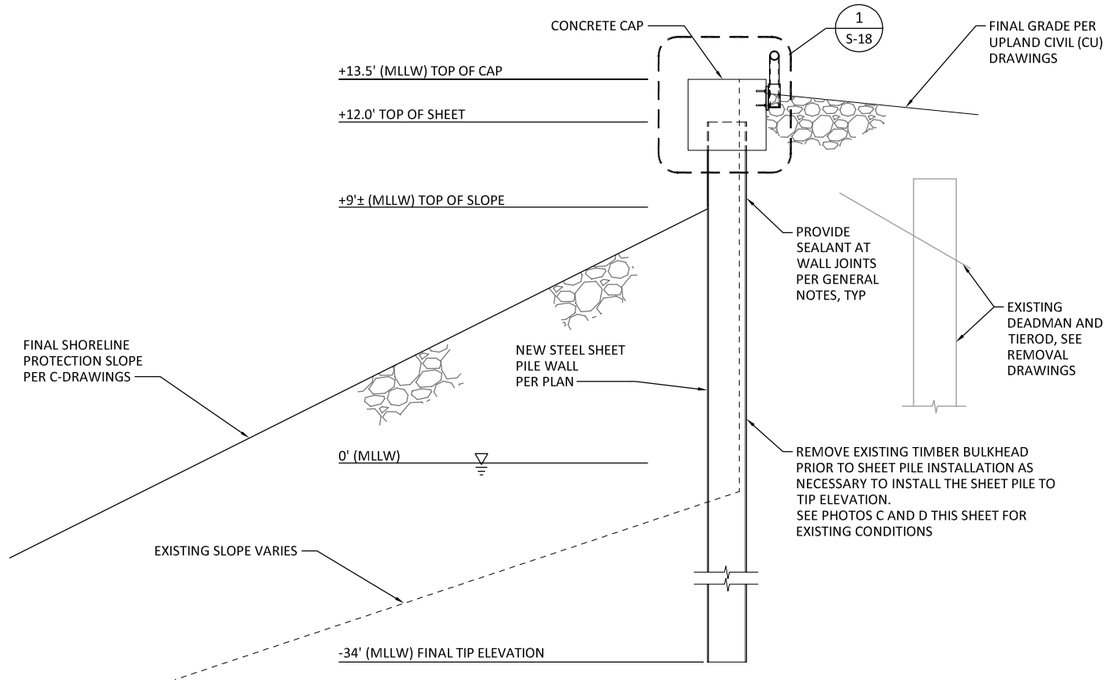
SOUTH SHORELINE MOORING BOLLARD

S-10

SHEET NO. 85 OF 104



A S-5 CHEVRON CUT OFF WALL SECTION
SCALE: 3/8" = 1'-0"



B S-5 SHEET PILE WALL SECTION AT CONFLICT WITH EXISTING BULKHEAD
SCALE: 3/8" = 1'-0"

C - PHOTO
SCALE: NTS

D - PHOTO
SCALE: NTS

NOTES:

1. SEE REMOVAL SHEETS FOR EXISTING TIMBER BULKHEAD INFORMATION.
2. SEE REMOVAL SHEETS AND SHEET S-13 FOR CONSTRUCTION SEQUENCING.

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

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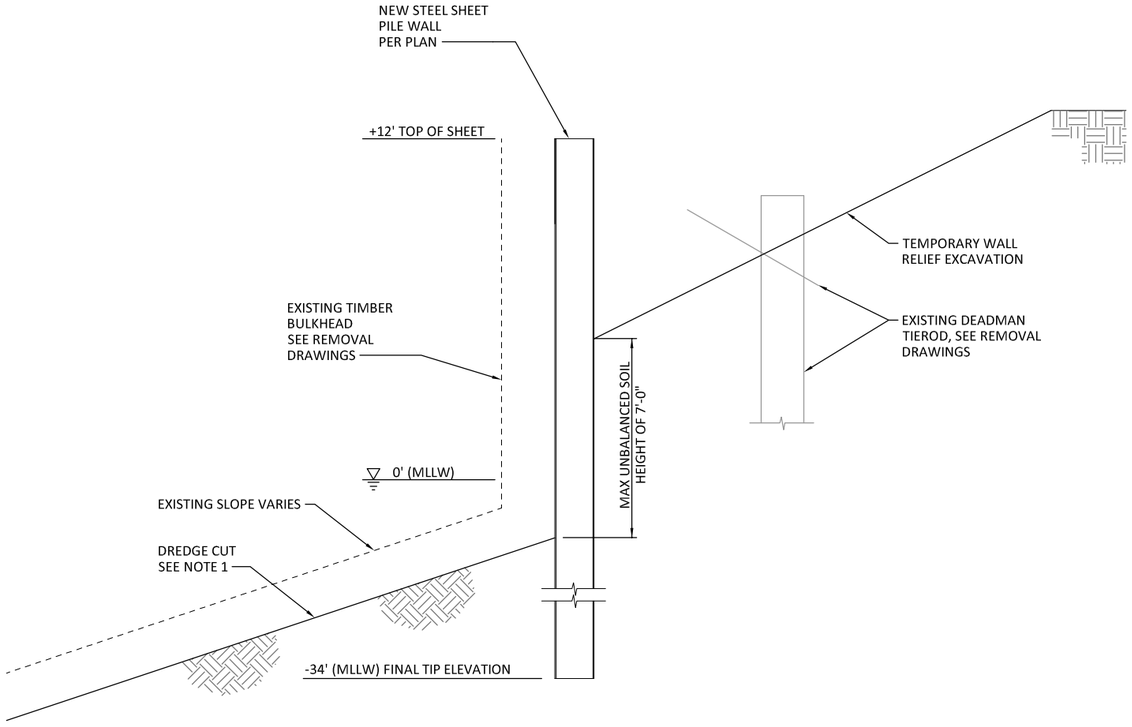
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

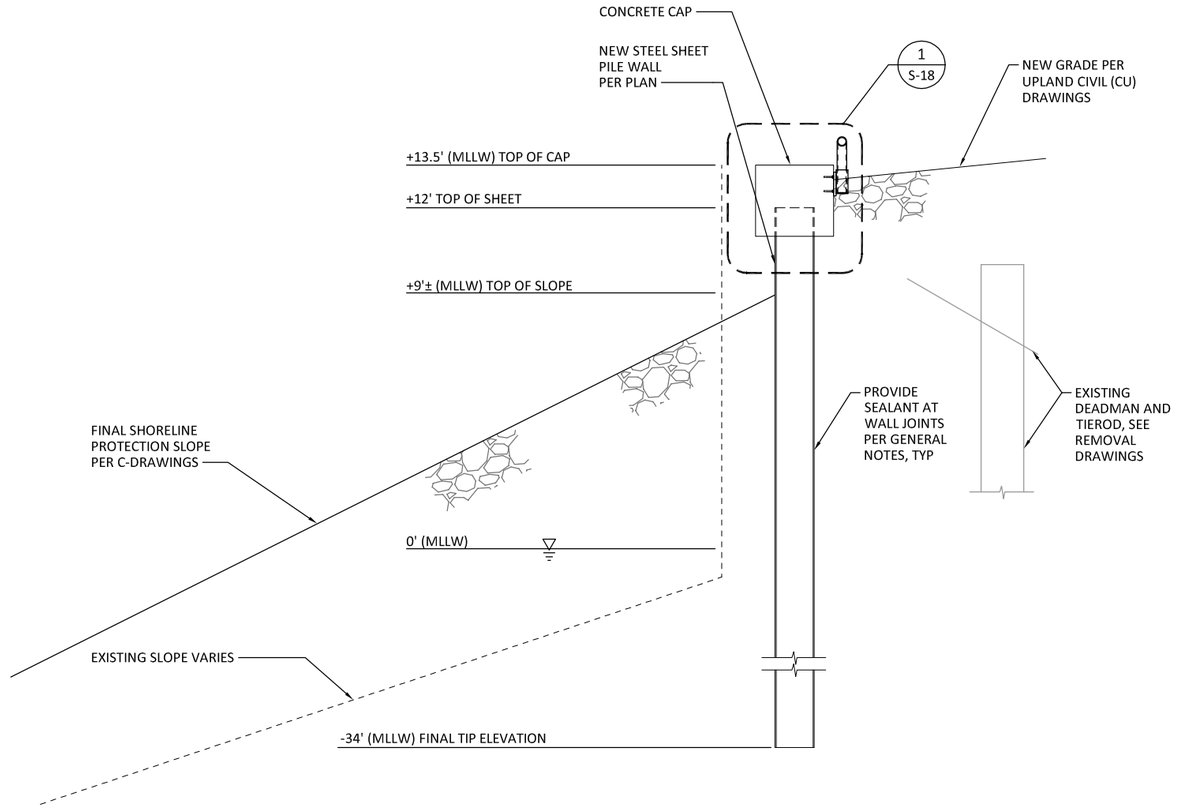
WEST CENTRAL WATERFRONT WALL SECTIONS - 1

S-11

SHEET NO. **86** OF **104**



TEMPORARY CONDITION DURING DREDGING OPERATIONS



FINAL CONDITION

A / S-5 WEST CENTRAL WATERFRONT WALL SECTION W/ EXISTING BULKHEAD CONDITION
SCALE: 3/8" = 1'-0"

NOTES:

1. TEMPORARY WALL RELIEF EXCAVATION SHALL BE PERFORMED PRIOR TO DREDGING ADJACENT TO WALL. SEE SPECS FOR MORE INFORMATION.
2. SEE REMOVAL SHEETS FOR INFORMATION AT EXISTING TIMBER BULKHEAD.
3. SEE SHEET S-13 FOR CONSTRUCTION SEQUENCING.

ONE INCH — AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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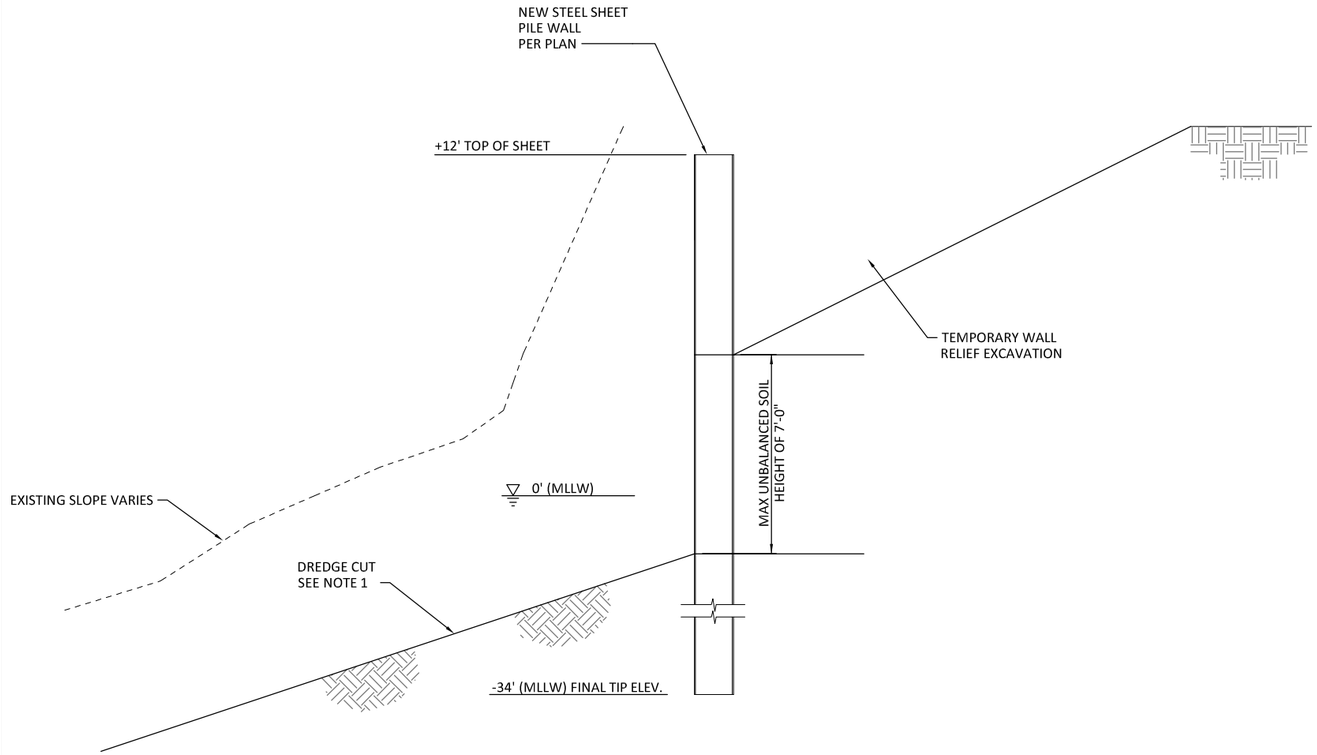
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

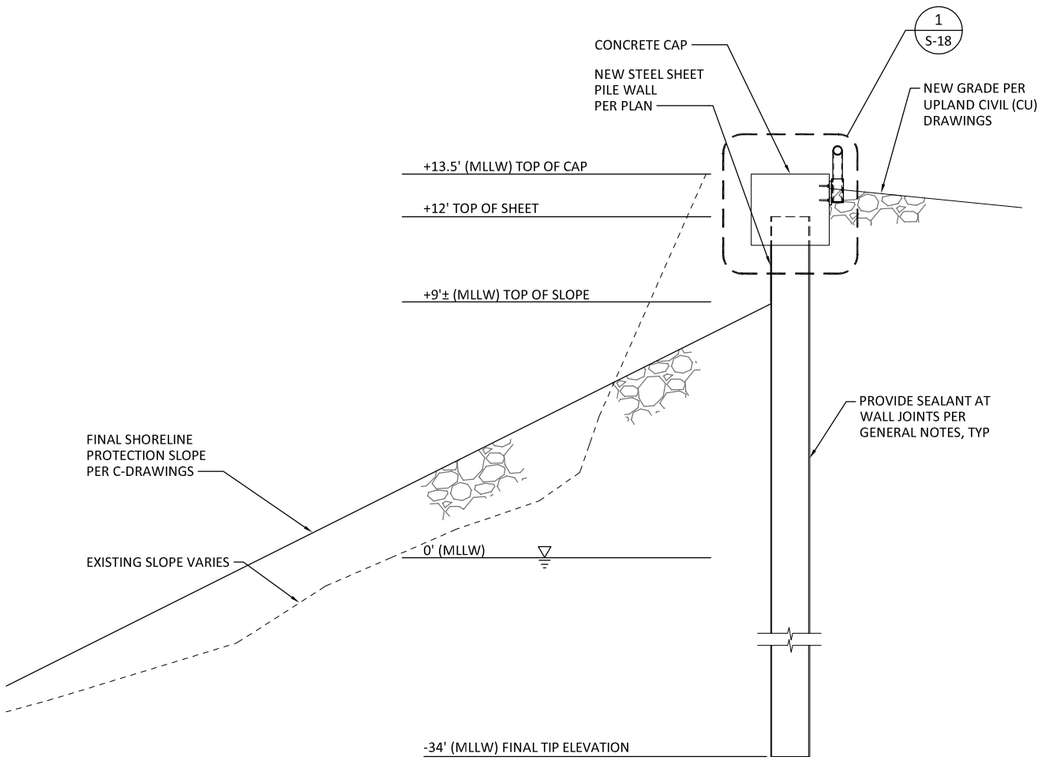
WEST CENTRAL WATERFRONT WALL SECTIONS 2

S-12

SHEET NO. **87** OF **104**



TEMPORARY CONDITION DURING DREDGING OPERATIONS



FINAL CONDITION

CONSTRUCTION SEQUENCING REQUIREMENTS:

1. REMOVE UPLAND DEBRIS TO INSTALL SHEETS.
2. DRIVE SHEETS TO TIP ELEVATION.
3. PERFORM TEMPORARY WALL RELIEF EXCAVATION.
4. PERFORM DREDGING AND CAPPING
5. FILL IN TEMPORARY EXCAVATION AND GRADE PER UPLAND CIVIL (CU) SHEETS.

A / S-6 WEST CENTRAL WATERFRONT WALL SECTION
SCALE: 3/8" = 1'-0"

NOTES:

1. TEMPORARY WALL RELIEF EXCAVATION SHALL BE PERFORMED PRIOR TO DREDGING ADJACENT TO WALL. SEE SPECS FOR MORE INFORMATION.

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

WEST CENTRAL WATERFRONT WALL SECTIONS - 3

S-13

SHEET NO. **88** OF **104**

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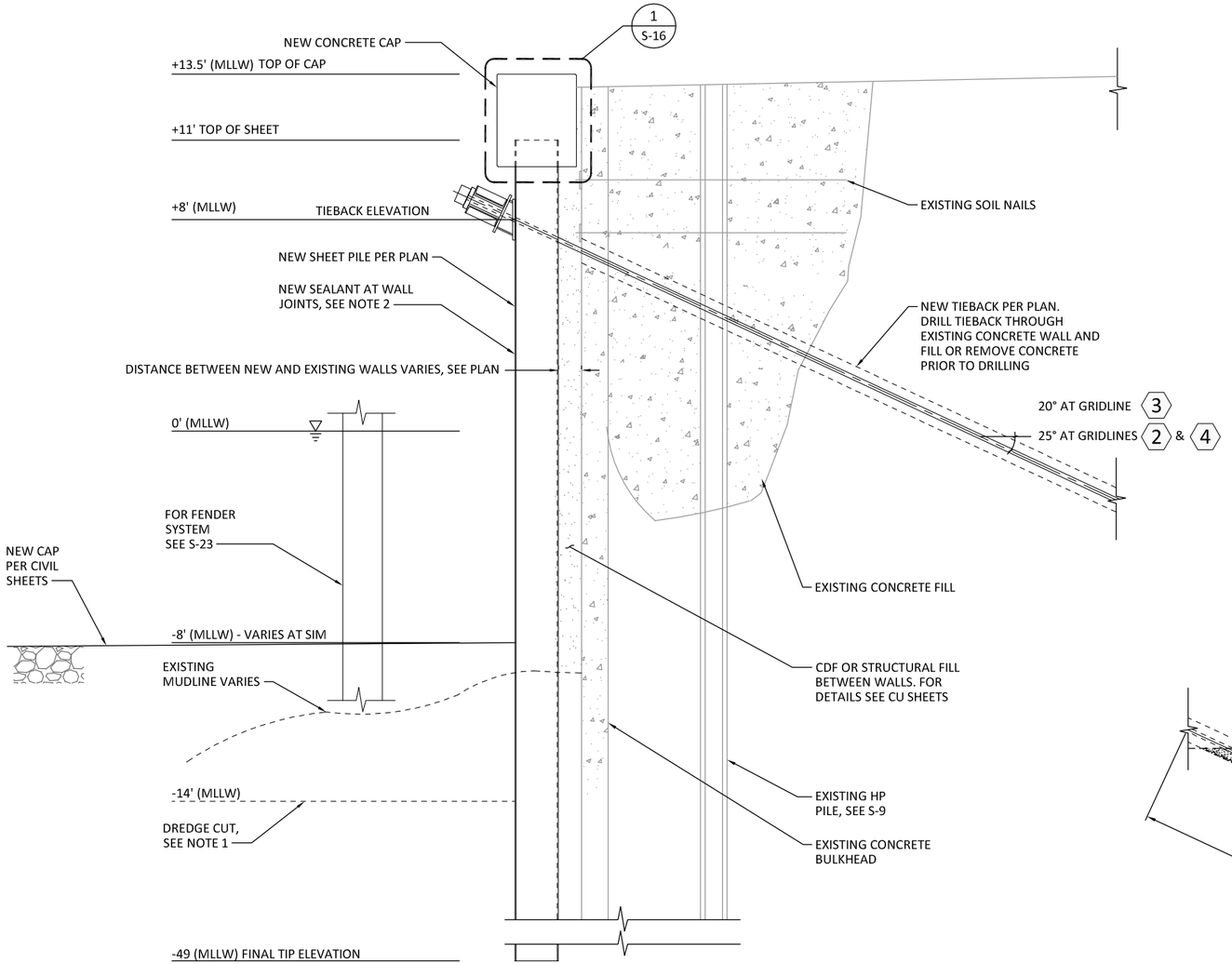

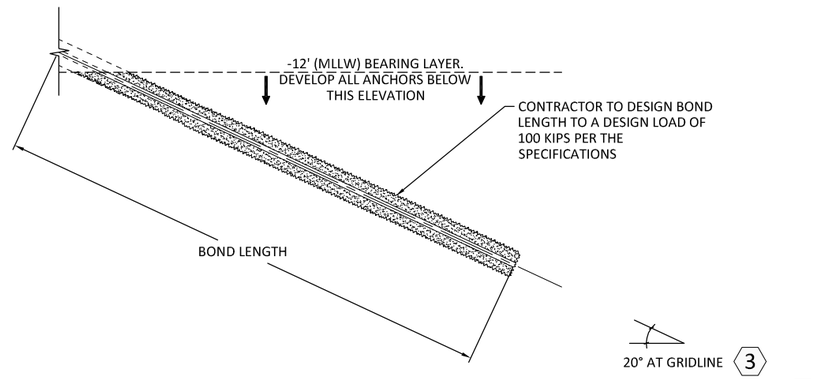

CONSTRUCTION SEQUENCE

STEP 1: DRIVE NEW SHEET PILE

STEP 2: INFILL GAP BETWEEN EXISTING BULKHEAD WALL AND NEW SHEET PILE WALL WITH STRUCTURAL BACKFILL TO MAX ELEVATION OF +4' OR CDF IN LIFTS TO TOP OF WALL, SEE CU PLANS AND SPECIFICATIONS

STEP 3: DRILL, INSTALL, GROUT AND POST GROUT TIEBACKS

STEP 4: INSTALL WALER AND MAKE FIELD WELDS

STEP 5: BACKFILL BETWEEN WALLS TO FULL HEIGHT AND TIGHTEN TIEBACKS SIMULTANEOUSLY TO MAINTAIN VERTICAL WALL ALIGNMENT

STEP 6: PERFORM PERFORMANCE AND PROOF TESTING PER SPECIFICATIONS.

STEP 7: CONSTRUCT CONCRETE CAP AND COMPLETE UPLAND SURFACING PER UPLAND CIVIL (CU) DRAWINGS.

CONSTRUCTION NOTES:

1. CAPACITY OF EXISTING BULKHEAD WALL IS UNKNOWN. CONTRACTOR TO USE AT THEIR OWN RISK.
2. THE ALLOWABLE TEMPORARY VERTICAL LOAD ON THE NEW SHEET PILE WALL IS 4.7 KIPS PER LINEAR FOOT.

A / S-7 MAPLE ST. BULKHEAD SECTION
SCALE: 3/8" = 1'-0"

NOTE:

1. SHEET PILE, TIEBACKS, AND WALER MUST BE INSTALLED AND TIEBACKS TESTED & APPROVED BEFORE PERFORMING DREDGE CUT. SEE SPECS FOR MORE INFORMATION.
2. SEAL MAPLE STREET BULKHEAD AT EVERY KNUCKLE JOINT FROM TOP OF WALL TO EL -14 MLLW.

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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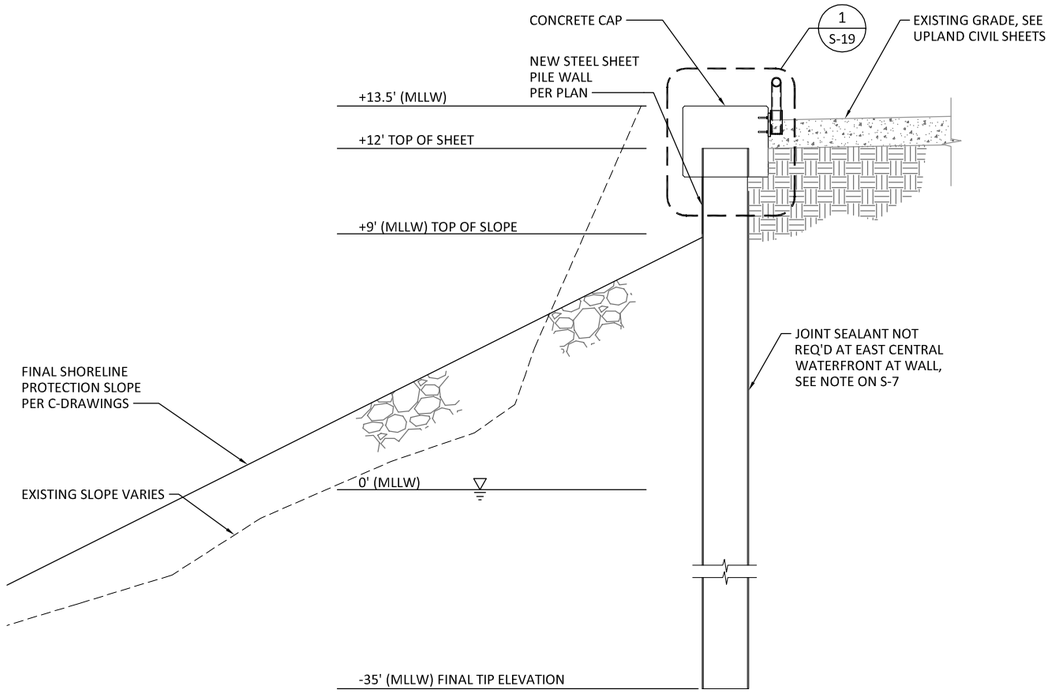
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

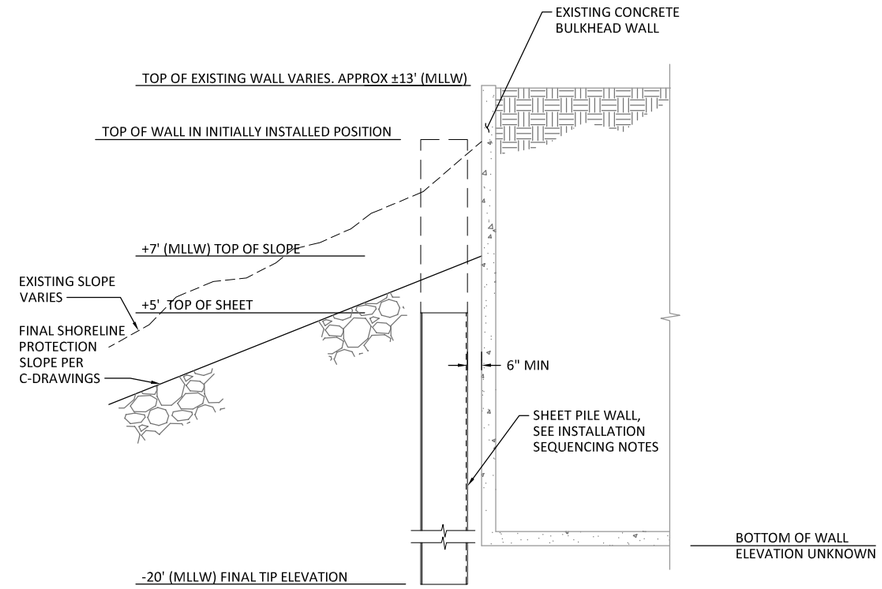
MAPLE ST. BULKHEAD SECTION

S-14

SHEET NO. 89 OF 104



A S-8 EAST CENTRAL WATERFRONT WALL SECTION
SCALE: 3/8" = 1'-0"



B S-8 SECTION
SCALE: 3/8" = 1'-0"

SHEET PILE INSTALLATION SEQUENCE:

1. INSTALL SHEET PILE WALL W/ TOP OF WALL AT OR ABOVE EXISTING SHORELINE ELEVATION
2. BACKFILL ANY GAPS BETWEEN NEW SHEET PILE WALL & EXISTING CONCRETE WALL WITH CDF.
3. DREDGE OUT SLOPE IN FRONT OF NEW WALL PER CIVIL DRAWINGS.
4. CUT SHEET PILE WALL DOWN TO FINAL TOP OF SHEET ELEV
5. CAP SLOPE PER CIVIL DRAWINGS

FINAL BID DOCUMENT

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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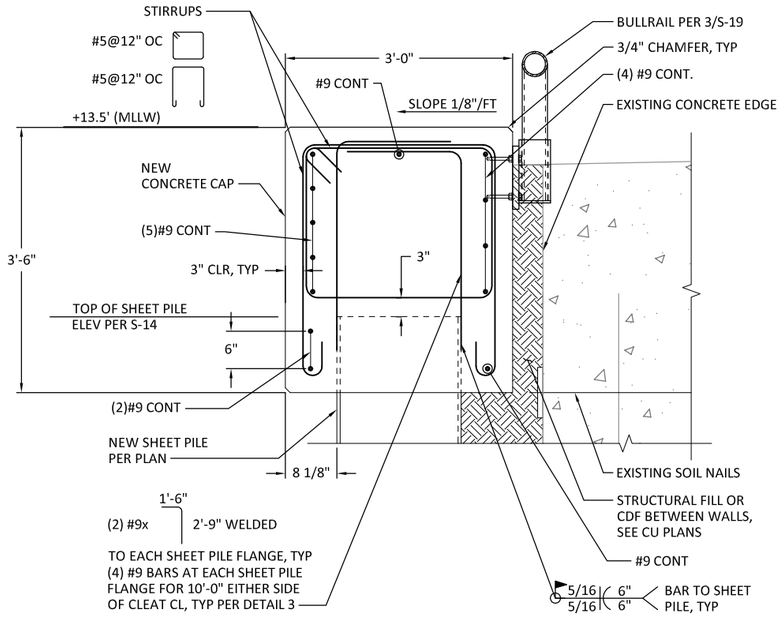
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

EAST CENTRAL WATERFRONT WALL SECTION

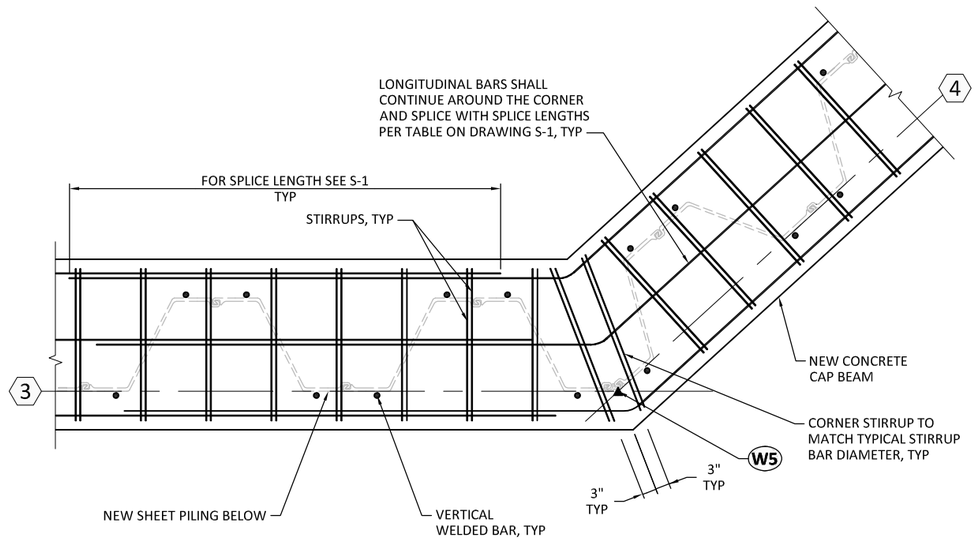
S-15

SHEET NO. 90 OF 104

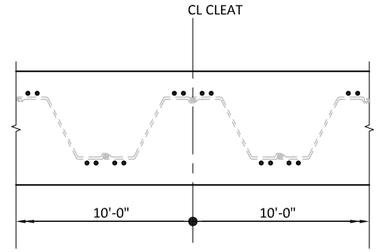


NOTE:
FOR MORE INFORMATION SEE
SECTION A ON SHEET S-14

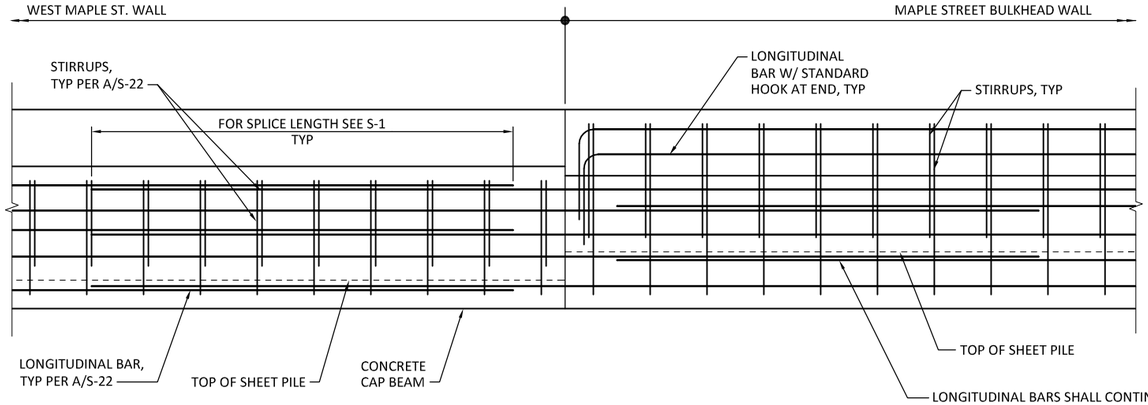
1 / S-14 **BULKHEAD WALL DETAIL**
SCALE: 1" = 1'-0"



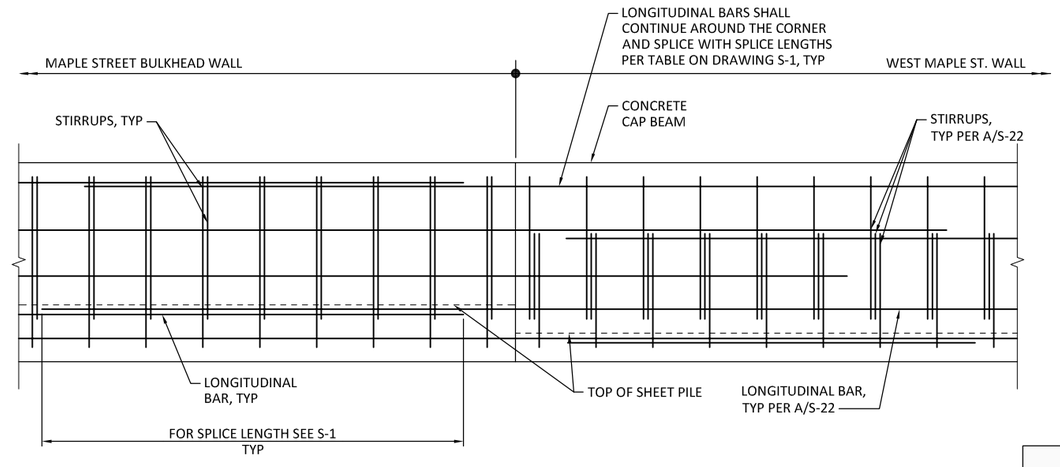
2 / S-9 **DETAIL**
SCALE: 3/4" = 1'-0"



3 / - **DETAIL**
SCALE: 1/2" = 1'-0"



A / S-9 **ELEVATION**
SCALE: 3/4" = 1'-0"



B / S-9 **ELEVATION**
SCALE: 3/4" = 1'-0"

ONE INCH
AT FULL SIZE, IF NOT ONE
INCH SCALE ACCORDINGLY

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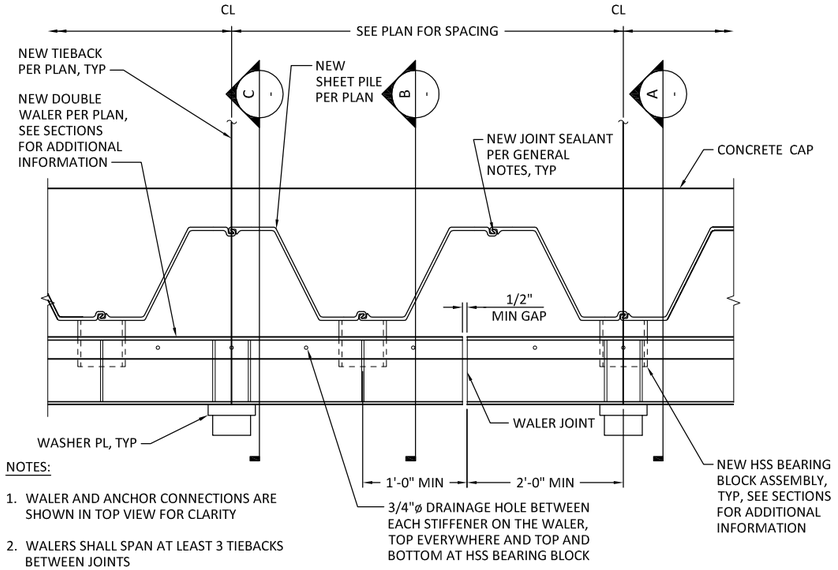
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

MAPLE ST. BULKHEAD DETAILS - 1

S-16

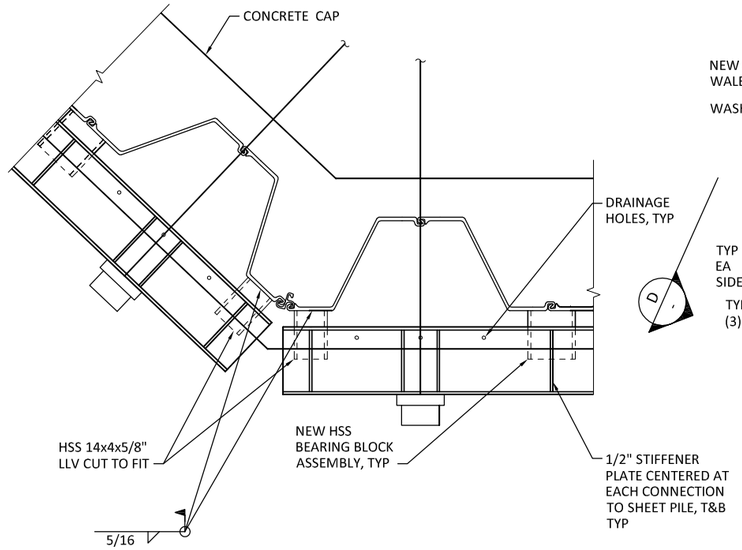
SHEET NO. **91** OF **104**



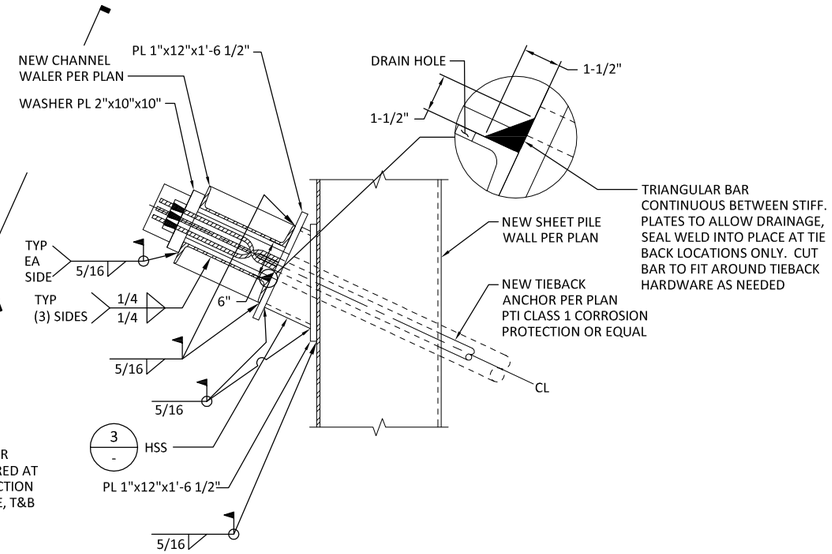
NOTES:

1. WALER AND ANCHOR CONNECTIONS ARE SHOWN IN TOP VIEW FOR CLARITY
2. WALERS SHALL SPAN AT LEAST 3 TIEBACKS BETWEEN JOINTS
3. WALER AND HSS BEARING BLOCKS IN PLAN VIEW ARE DRAWN CONCEPTUALLY

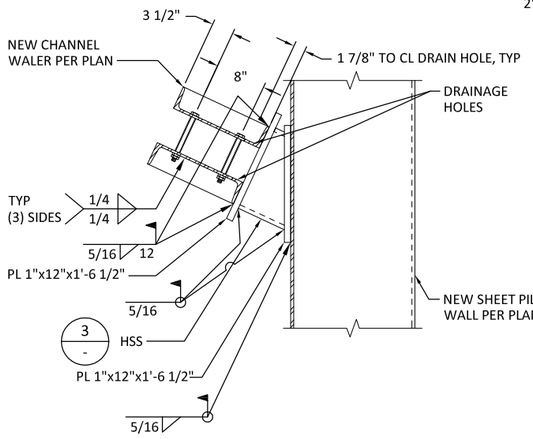
1/S-9 TYPICAL PLAN DETAIL
SCALE: 3/4" = 1'-0"



2/S-9 CORNER DETAIL
SCALE: 3/4" = 1'-0"



A
SECTION
SCALE: 1" = 1'-0"



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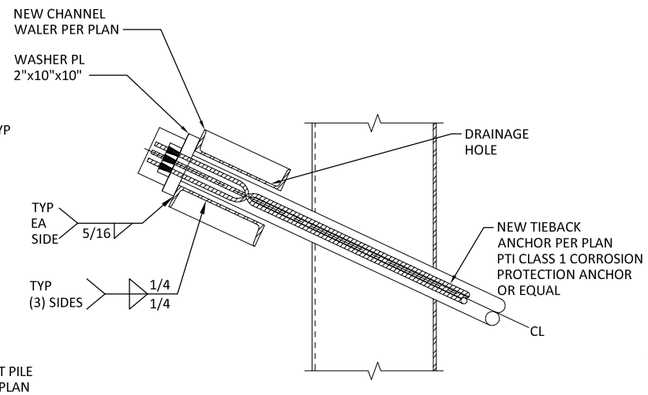
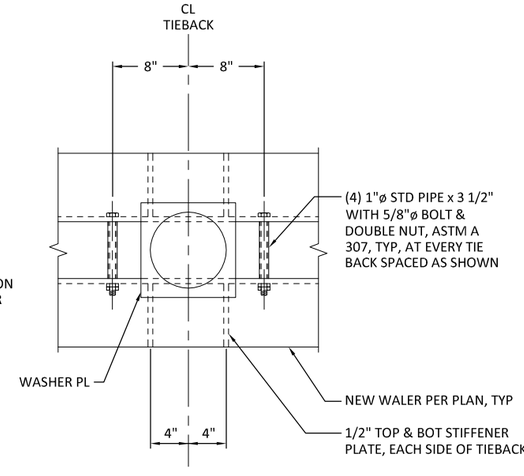
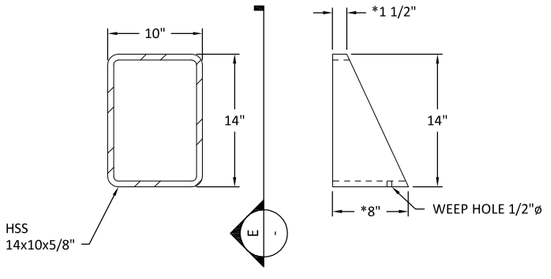


C
SECTION
SCALE: 1" = 1'-0"



D
ANCHOR ELEVATION
SCALE: 1-1/2" = 1'-0"



3
HSS BEARING BLOCK DETAIL
SCALE: 1-1/2" = 1'-0"

E
HSS BEARING BLOCK ELEVATION
SCALE: 1-1/2" = 1'-0"

* DIMENSIONS SHOWN ARE MINIMUM. MAY INCREASE DUE TO VARIANCE IN AS-DRIVEN SHEET PILE WALL FACE. CUT IN FIELD TO FIT.

FINAL BID DOCUMENT

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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ROBERT H. RAY — STATE OF WASHINGTON — 33839 — PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

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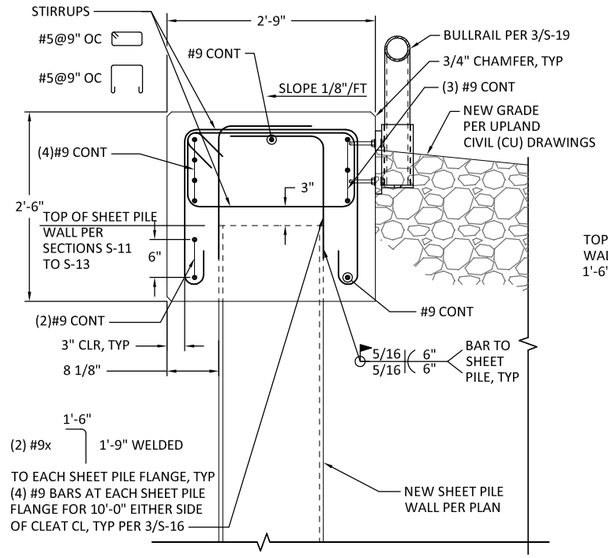
CHECKED BY: TAH
APPROVED BY: RHR
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

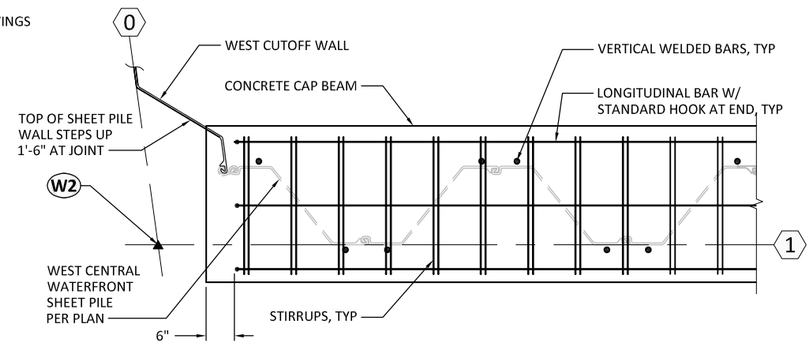
MAPLE ST. BULKHEAD DETAILS - 2

S-17

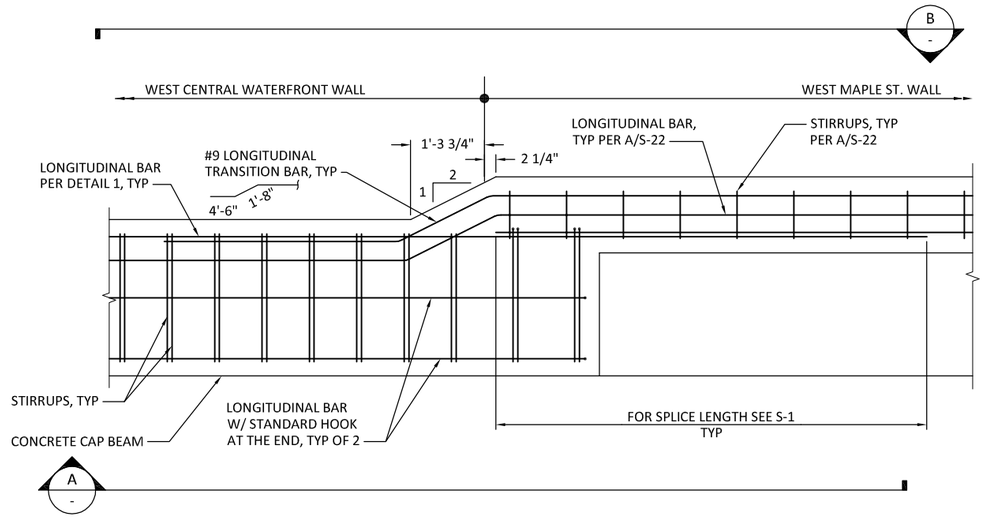
SHEET NO. **92** OF **104**



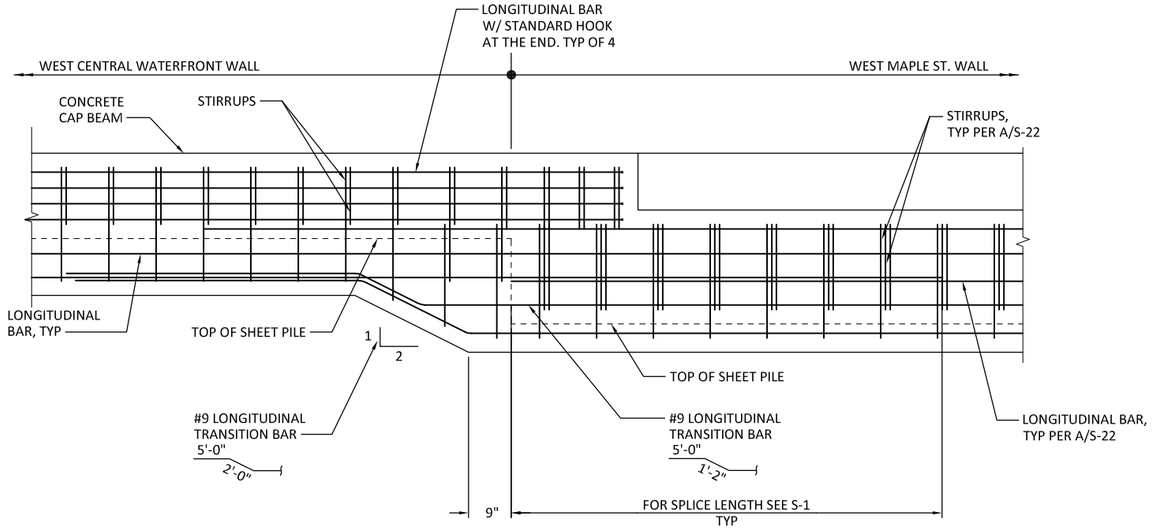
1 / S-13 WEST CENTRAL WATERFRONT WALL CAP DETAIL
S-11, S-12, SCALE: 1" = 1'-0"



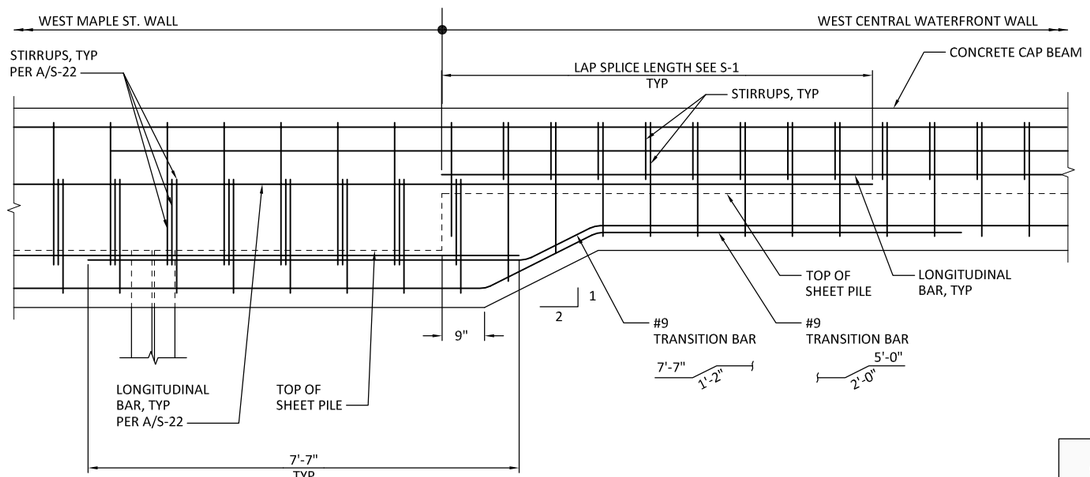
2 / S-5 CAP REINFORCEMENT DETAIL
SCALE: 3/4" = 1'-0"



3 / S-6 TOP REINFORCEMENT PLAN
SCALE: 3/4" = 1'-0"



A / - EVEVATION
SCALE: 3/4" = 1'-0"



B / - ELEVATION
SCALE: 3/4" = 1'-0"

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

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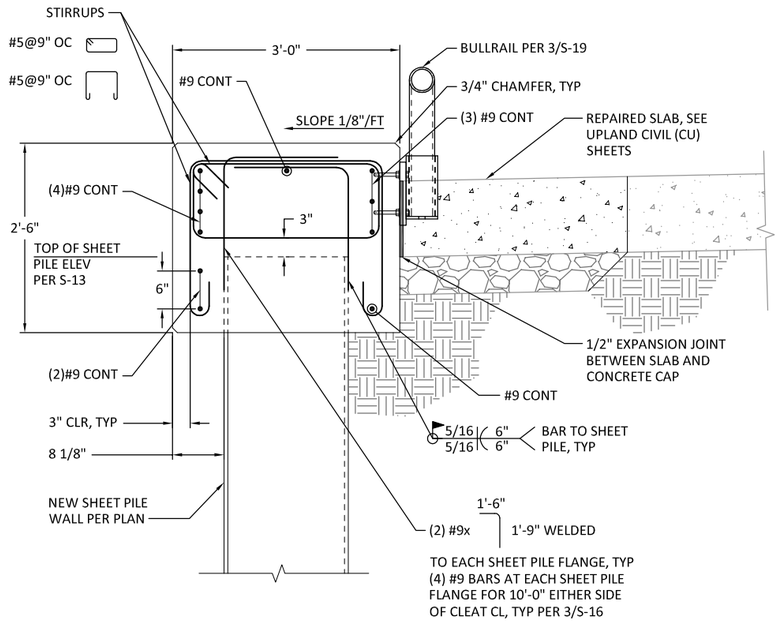
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

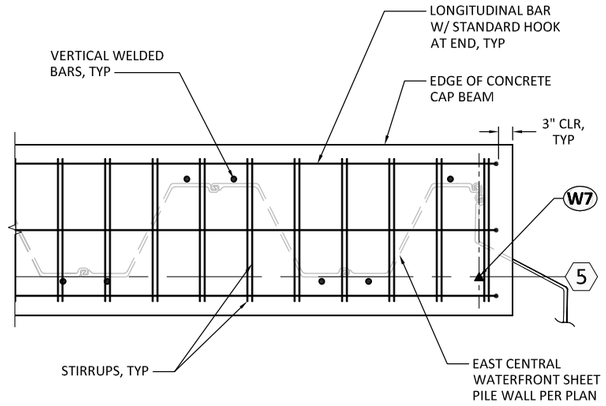
WEST CENTRAL WATERFRONT WALL DETAILS

S-18

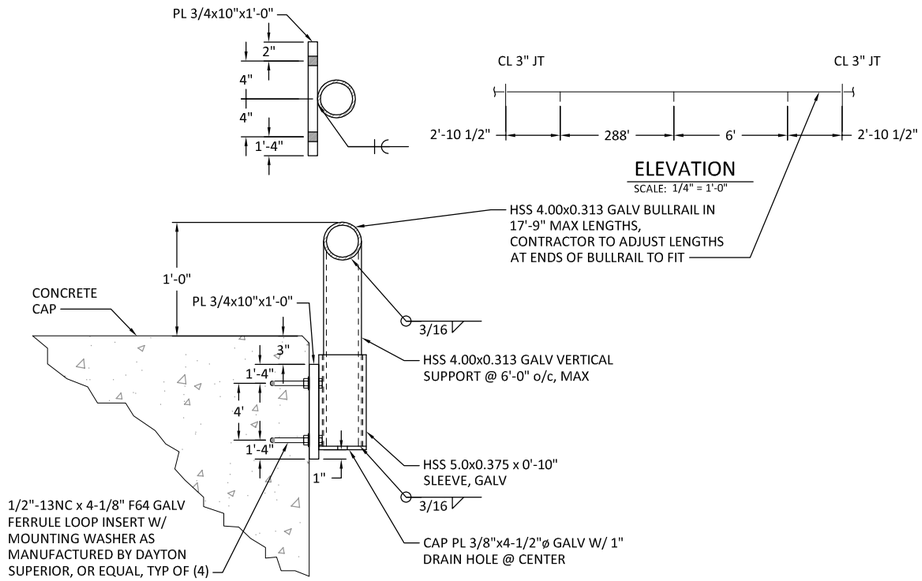
SHEET NO. **93** OF **104**



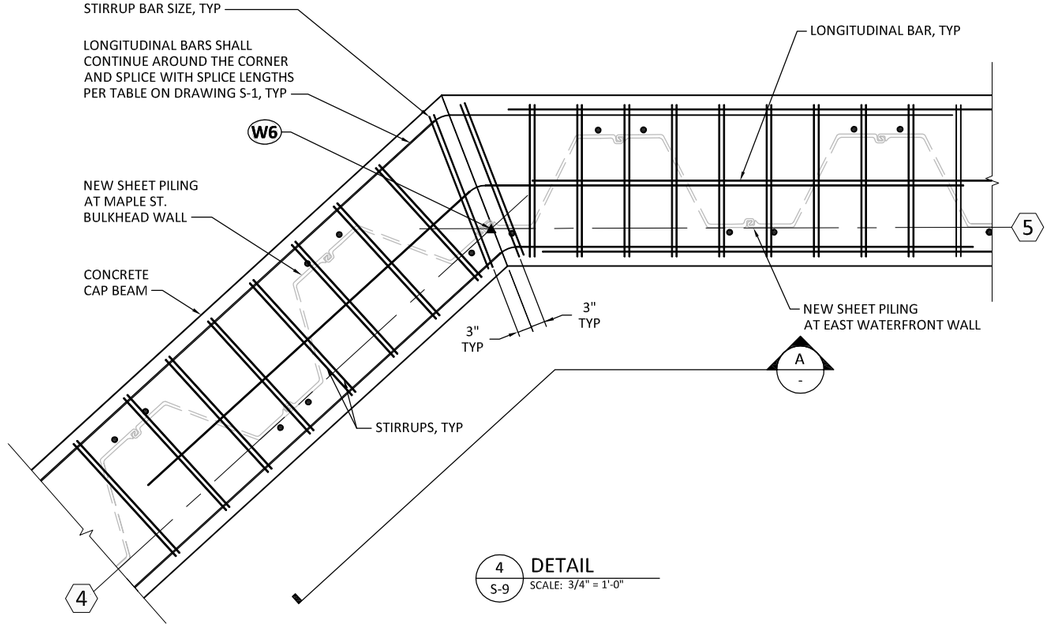
1 / S-15 EAST CENTRAL WATERFRONT WALL DETAIL
SCALE: 1" = 1'-0"



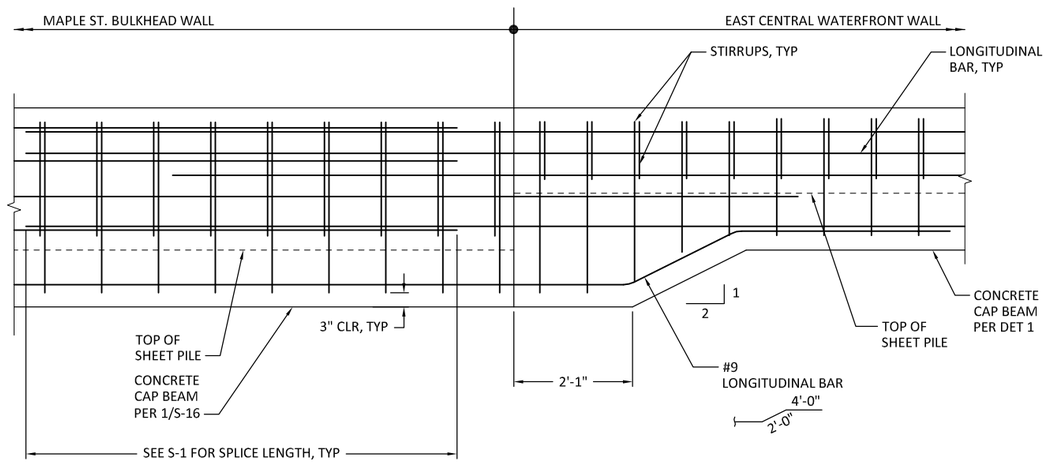
2 / S-8 CAP REINFORCEMENT DETAIL
SCALE: 3/4" = 1'-0"



3 / - TYP BULLRAIL SUPPORT DETAIL
SCALE: 1-1/2" = 1'-0"



4 / S-9 DETAIL
SCALE: 3/4" = 1'-0"



A / - ELEVATION
SCALE: 3/4" = 1'-0"

FINAL BID DOCUMENT

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ROBERT H. RICE — STATE OF WASHINGTON — 33839 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

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CHECKED BY: TAH
APPROVED BY: RHR
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DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

EAST CENTRAL WATERFRONT WALL

S-19

SHEET NO. 94 OF 104

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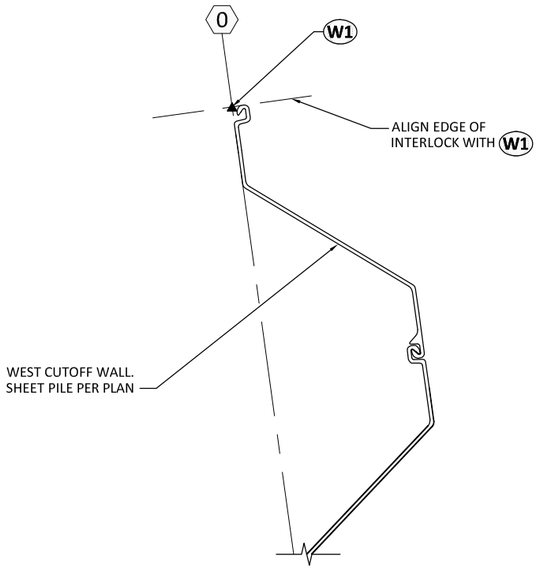
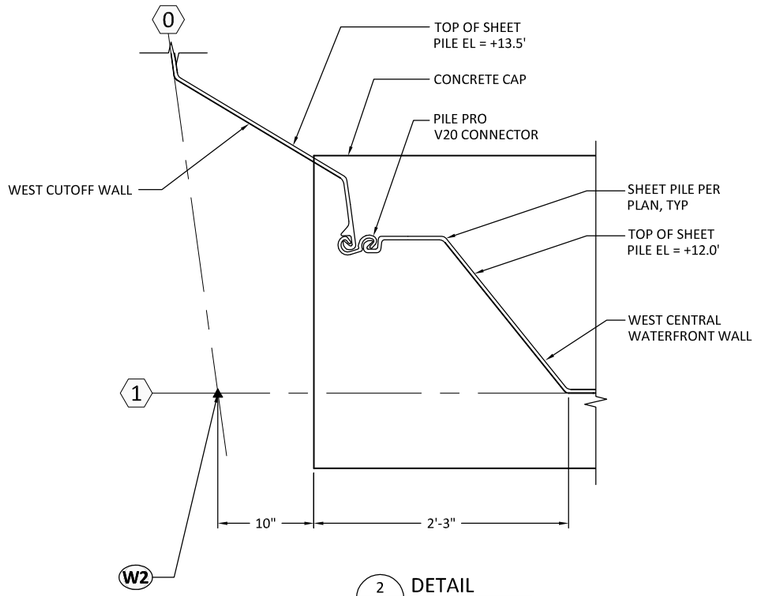
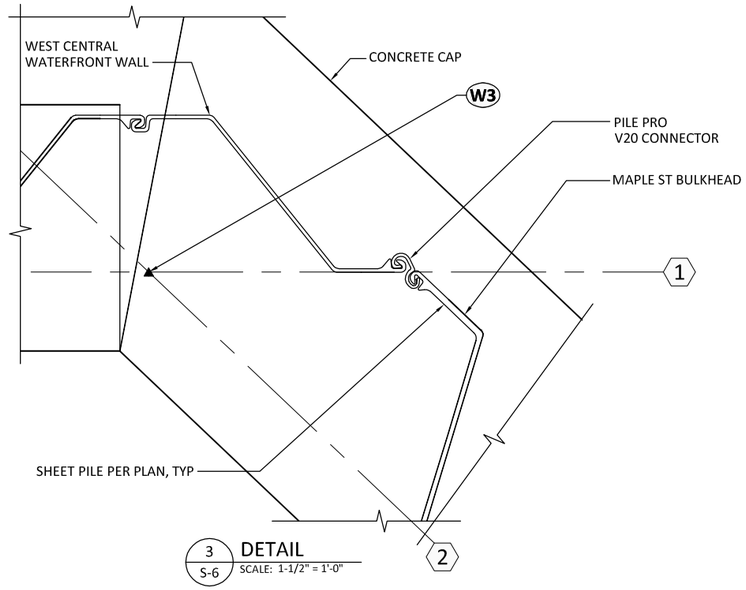


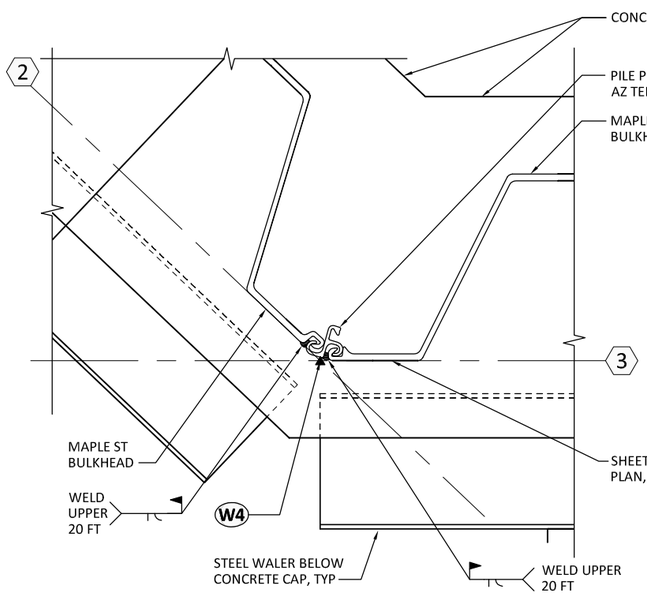
1 S-5 DETAIL
SCALE: 1-1/2" = 1'-0"



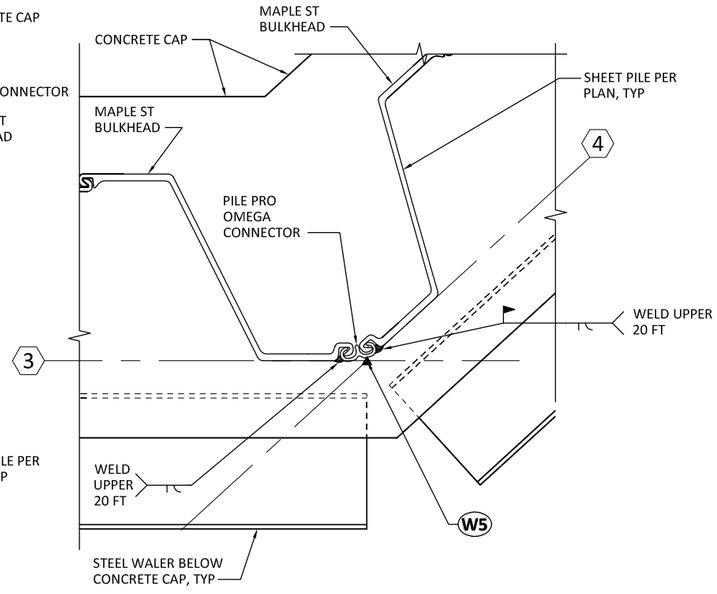
2 S-5 DETAIL
SCALE: 1-1/2" = 1'-0"



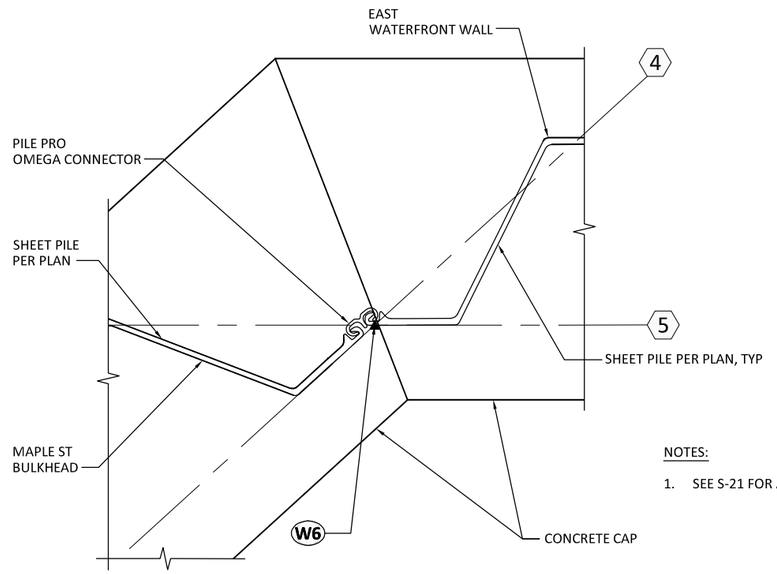
3 S-6 DETAIL
SCALE: 1-1/2" = 1'-0"



4 S-7 DETAIL
SCALE: 1-1/2" = 1'-0"



5 S-7 DETAIL
SCALE: 1-1/2" = 1'-0"



6 S-7 DETAIL
SCALE: 1-1/2" = 1'-0"

NOTES:

1. SEE S-21 FOR ADD'L INFORMATION

ONE INCH
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WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

DETAIL SECTIONS - 1

S-20

SHEET NO. 95 OF 104

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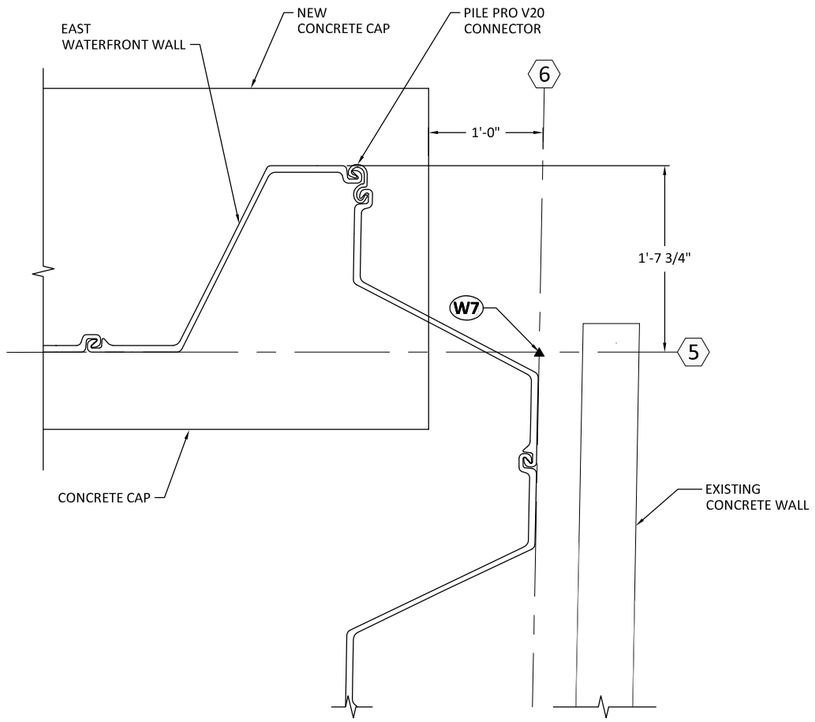
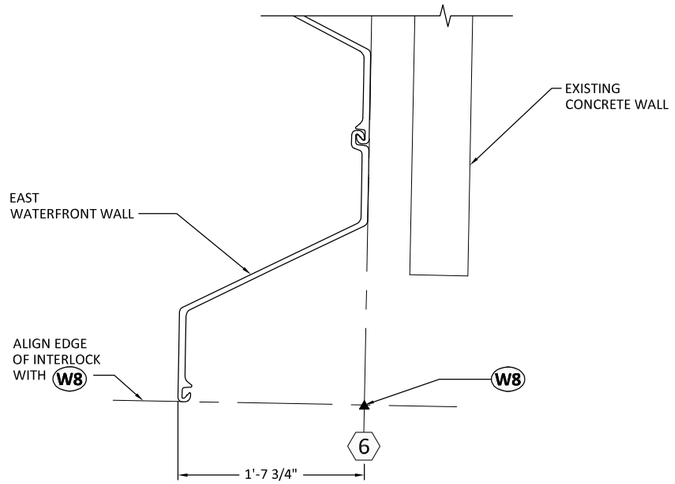
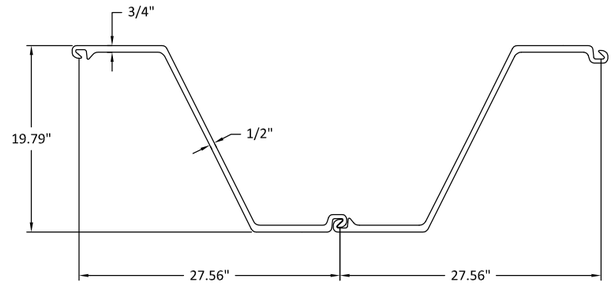


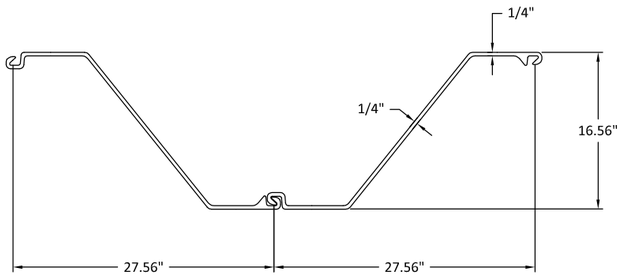
1 S-8 DETAIL
SCALE: 1-1/2" = 1'-0"



2 S-8 DETAIL
SCALE: 1-1/2" = 1'-0"



AZ 38-700N
SCALE: 1-1/2" = 1'-0"



AZ 19-700
SCALE: 1-1/2" = 1'-0"

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

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REVISIONS				
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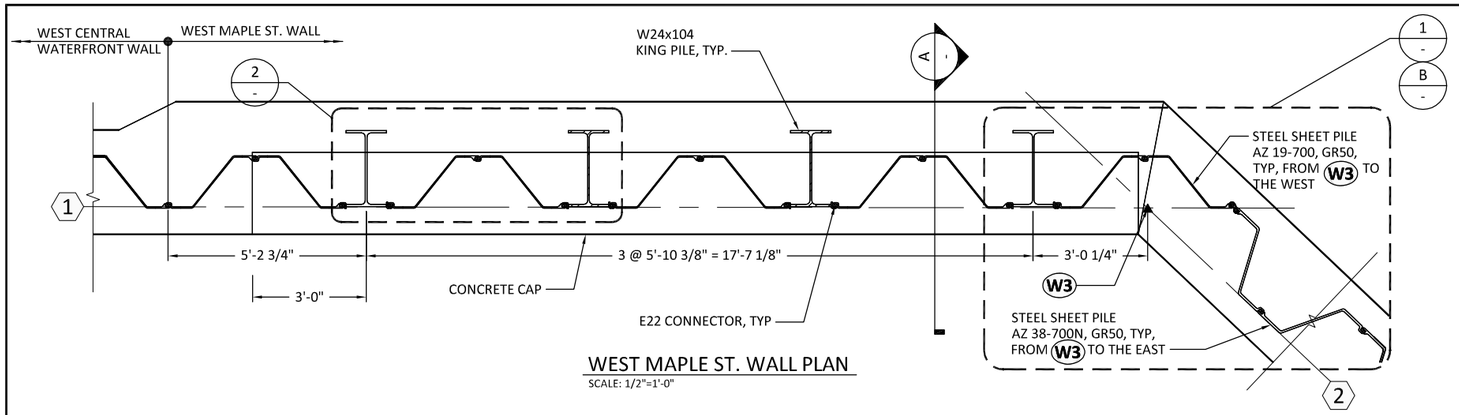
CHECKED BY: TAH
APPROVED BY: RHR
SCALE: AS NOTED
DATE: May 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

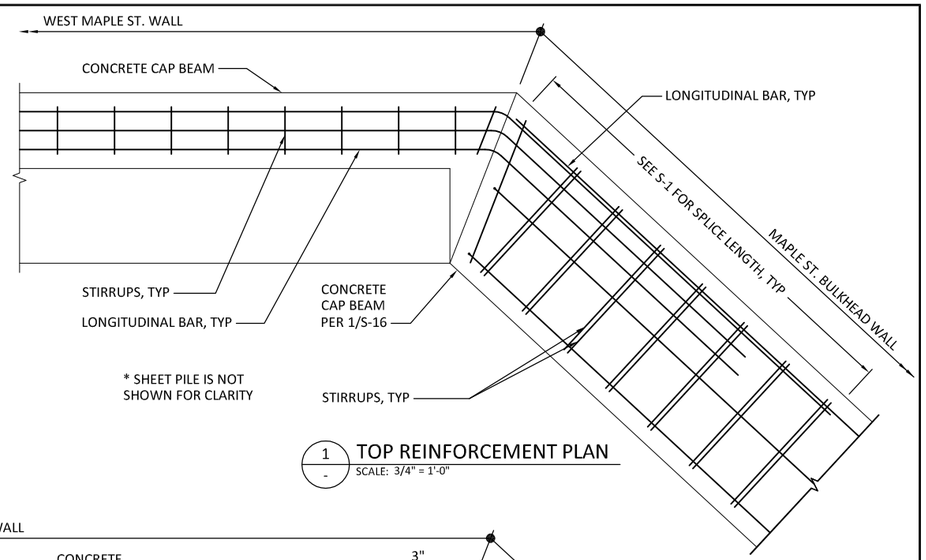
DETAIL SECTIONS - 2

S-21

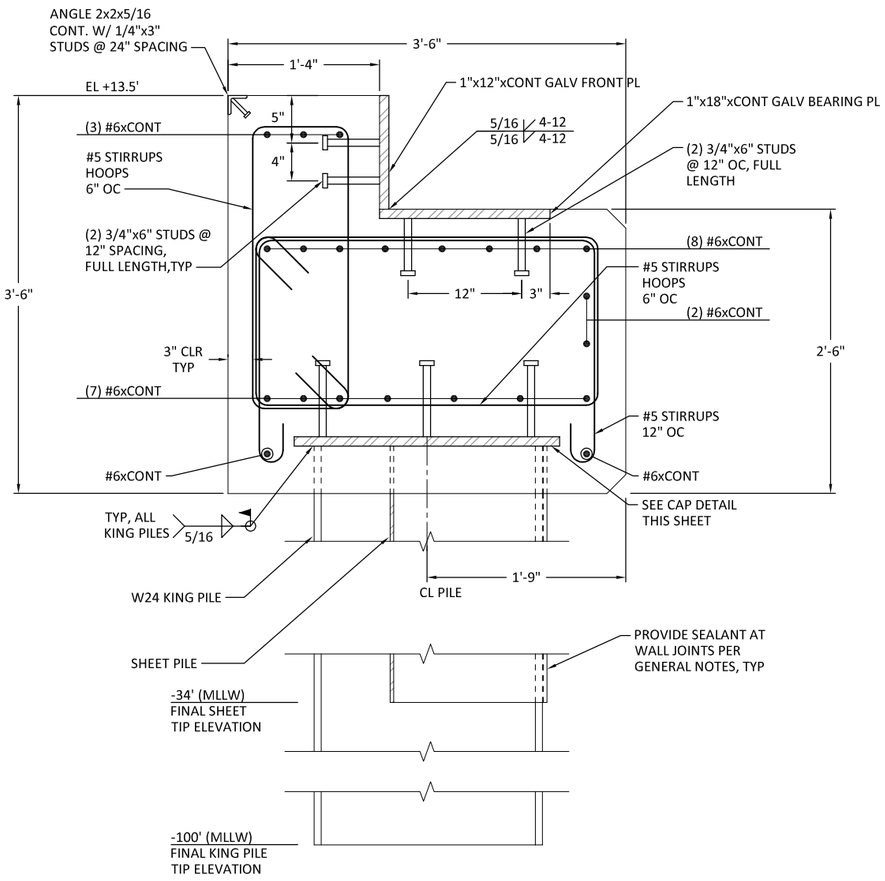
SHEET NO. **96** OF **104**



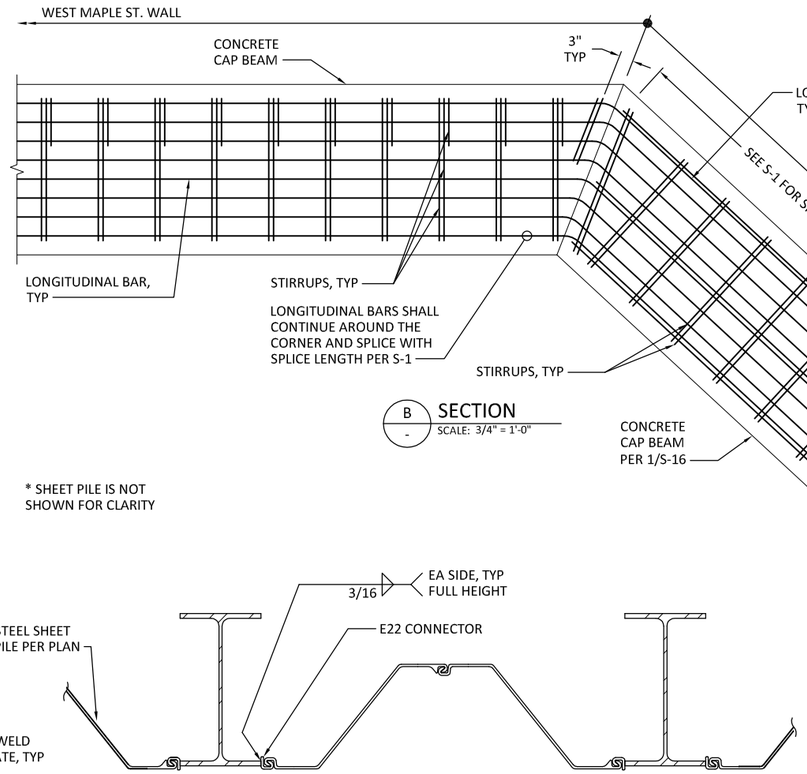
WEST MAPLE ST. WALL PLAN
SCALE: 1/2"=1'-0"



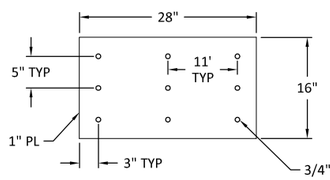
1/- TOP REINFORCEMENT PLAN
SCALE: 3/4" = 1'-0"



A/- WEST MAPLE ST. WALL SECTION
SCALE: 1-1/2" = 1'-0"



B/- SECTION
SCALE: 3/4" = 1'-0"



CAP DETAIL @ EA KING PILE, (4) LOCATIONS
SCALE: 1"=1'-0"

2/- KING PILE DETAIL, TYP
SCALE: 1" = 1'-0"

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

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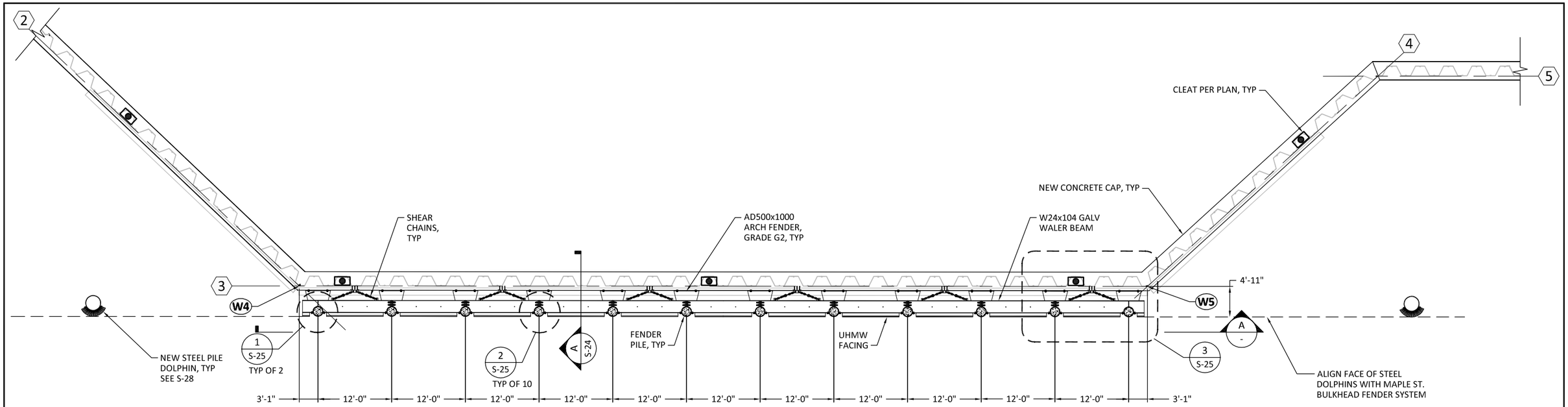
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

WEST MAPLE ST. WALL PLAN AND SECTIONS

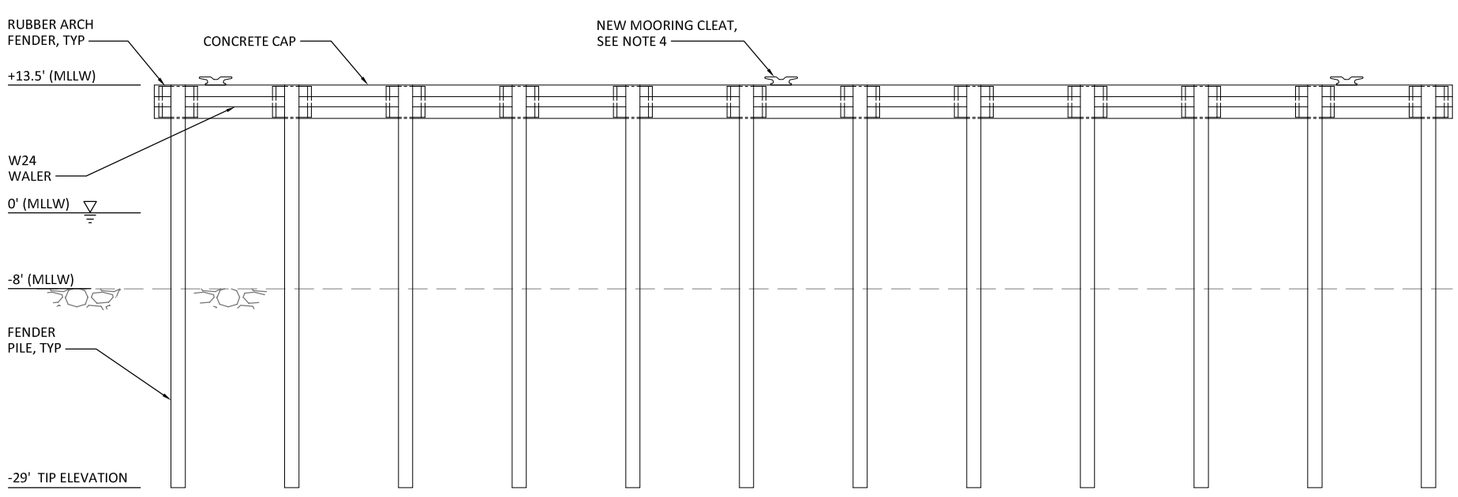
S-22

SHEET NO. **97** OF **104**



MAPLE ST. FENDER SYSTEM PLAN

SCALE: 1-1/2"=10'



NOTES:

1. INSTALL FENDER PILES AFTER DREDGING AND CAPPING HAVE OCCURRED.
2. ROPE GUARD NOT SHOWN FOR CLARITY. FOR DETAILS SEE S-24.
3. TIEBACKS NOT SHOWN FOR CLARITY.
4. FOR MOORING CLEAT LOCATIONS, SEE S-7.

A - ELEVATION

SCALE: 1-1/2"=10'

NORTH

PROJECT NORTH

0 10 20

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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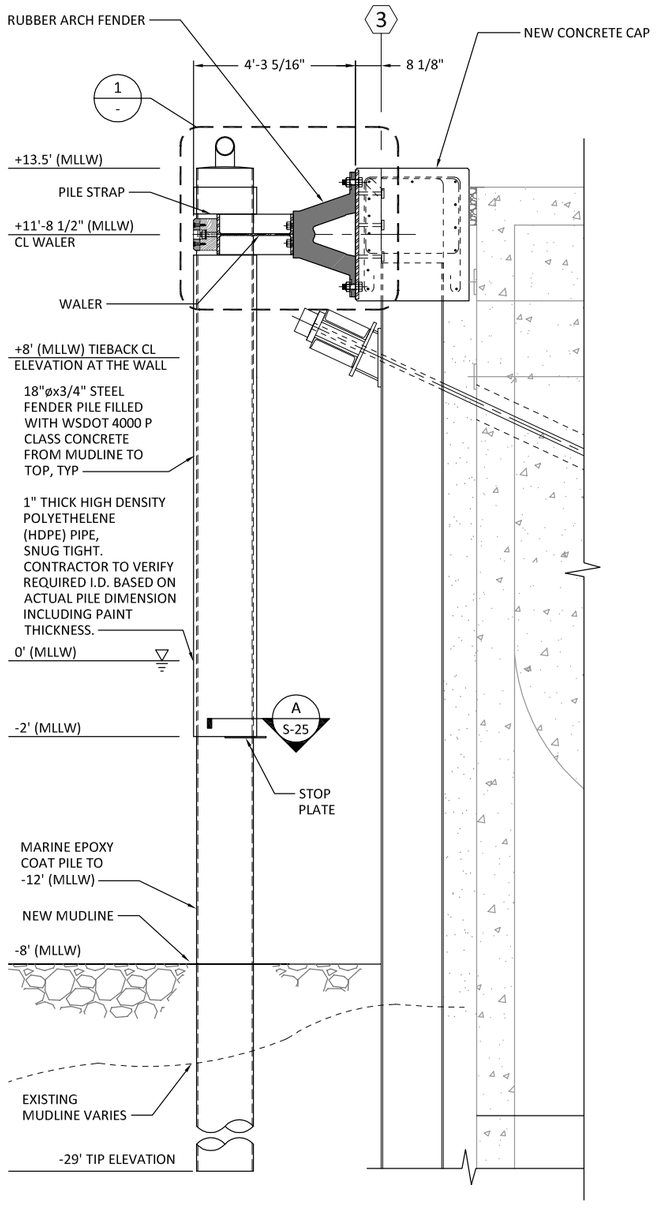
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

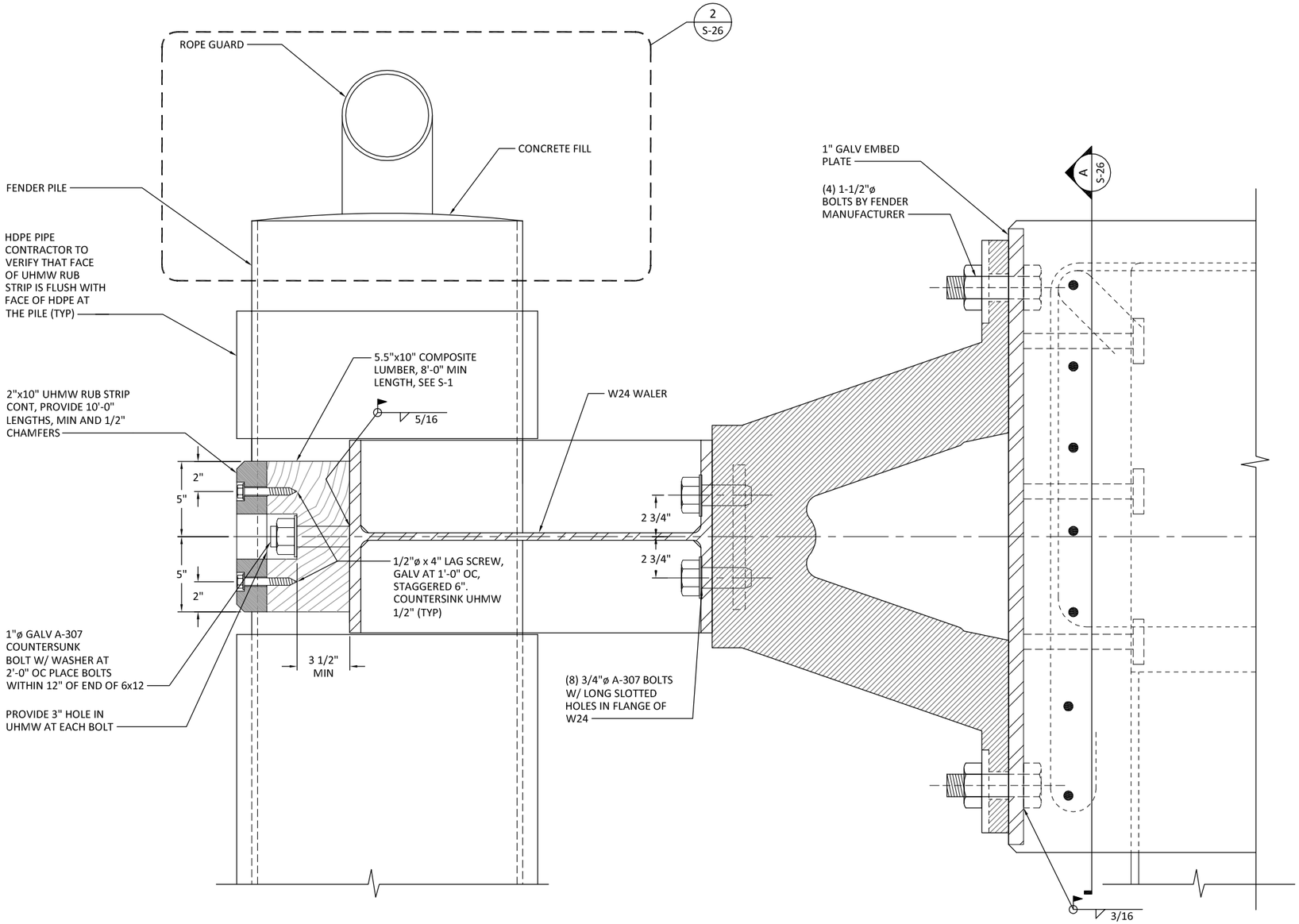
MAPLE ST. FENDER SYSTEM PLAN AND ELEVATION

S-23

SHEET NO. 98 OF 104



A / S-23 FENDER PILE TRANSVERSE SECTION
SCALE: 1/4" = 1'-0"



1 / - DETAIL
SCALE: 3" = 1'-0"

ONE INCH
AT FULL SIZE, IF NOT ONE
INCH SCALE ACCORDINGLY

FINAL BID DOCUMENT

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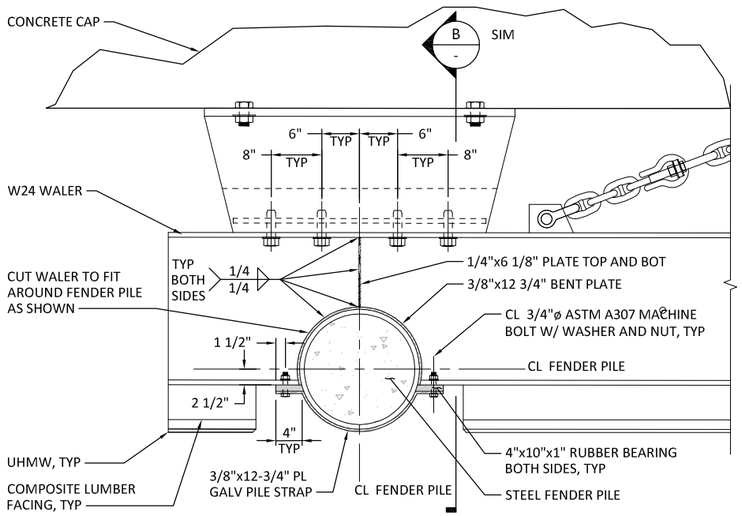
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

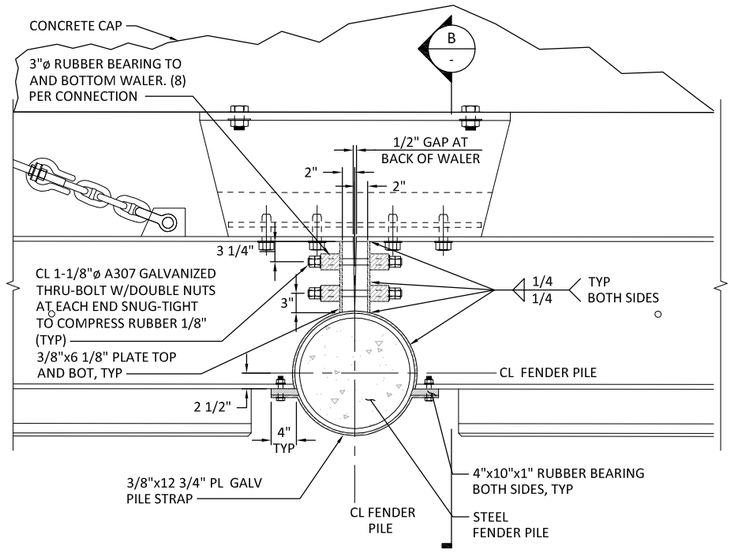
MAPLE ST. FENDER SYSTEM SECTION

S-24

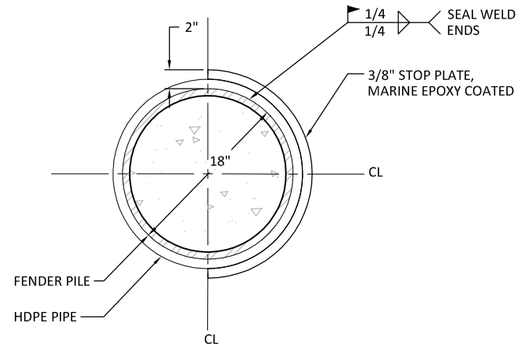
SHEET NO. **99** OF **104**



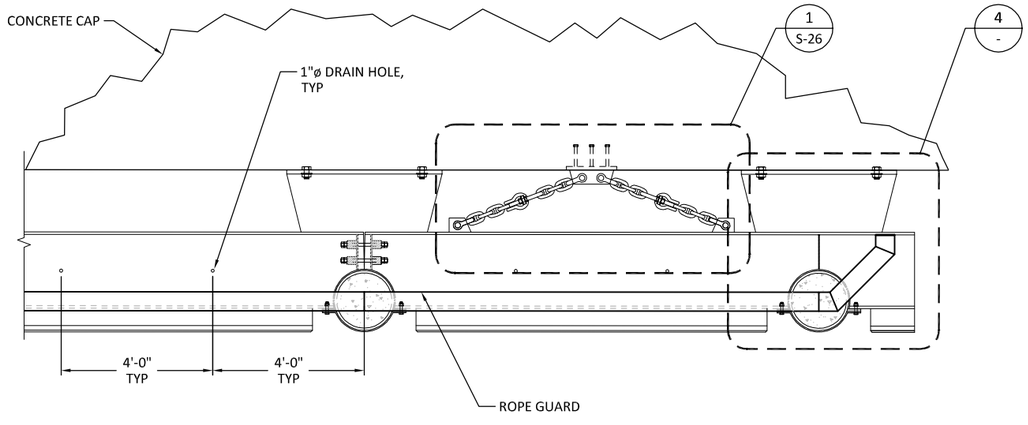
1 / S-23 DETAIL
SCALE: 1" = 1'-0"
TYP OF 2



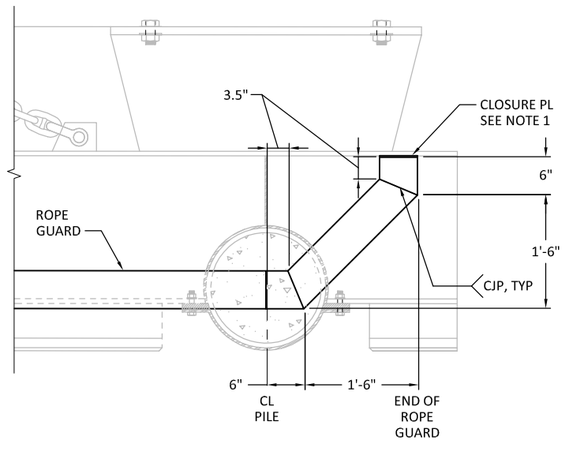
2 / S-23 DETAIL
SCALE: 1" = 1'-0"
TYP OF 10



A / S-24 STOP PLATE SECTION
SCALE: 1-1/2" = 1'-0"



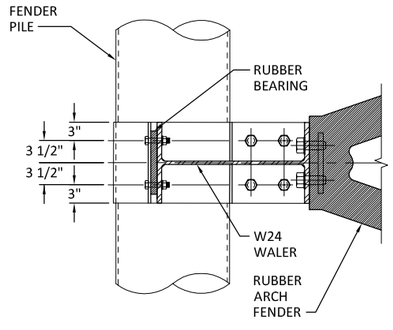
3 / S-23 DETAIL
SCALE: 1/2" = 1'-0"



4 / - DETAIL
SCALE: 1" = 1'-0"

NOTE:

1. WELD 1/4" THICK CLOSURE PLATE AT THE END OF ROPE GUARDS.



NOTE:

1. UHMW AND COMPOSITE LUMBER FACING NOT SHOWN FOR CLARITY.

B / - SECTION
SCALE: 1" = 1'-0"

ONE INCH
AT FULL SIZE, IF NOT ONE
INCH SCALE ACCORDINGLY

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ROBERT H. RILEY — STATE OF WASHINGTON — 33939 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

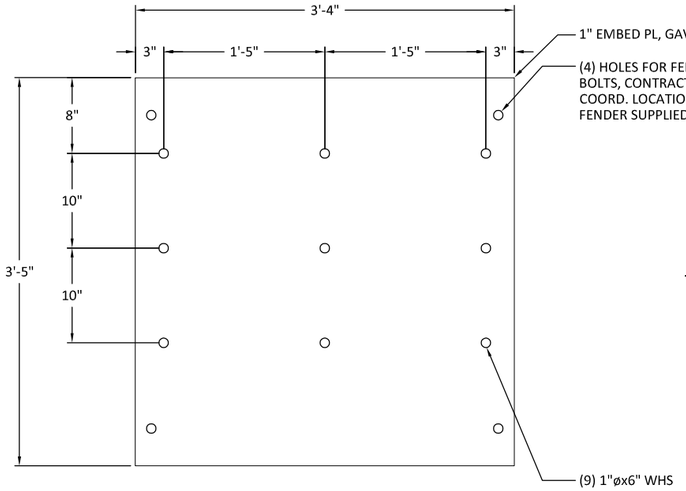
DESIGNED BY: EDE
DRAWN BY: GMC
CHECKED BY: TAH
APPROVED BY: RHR
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

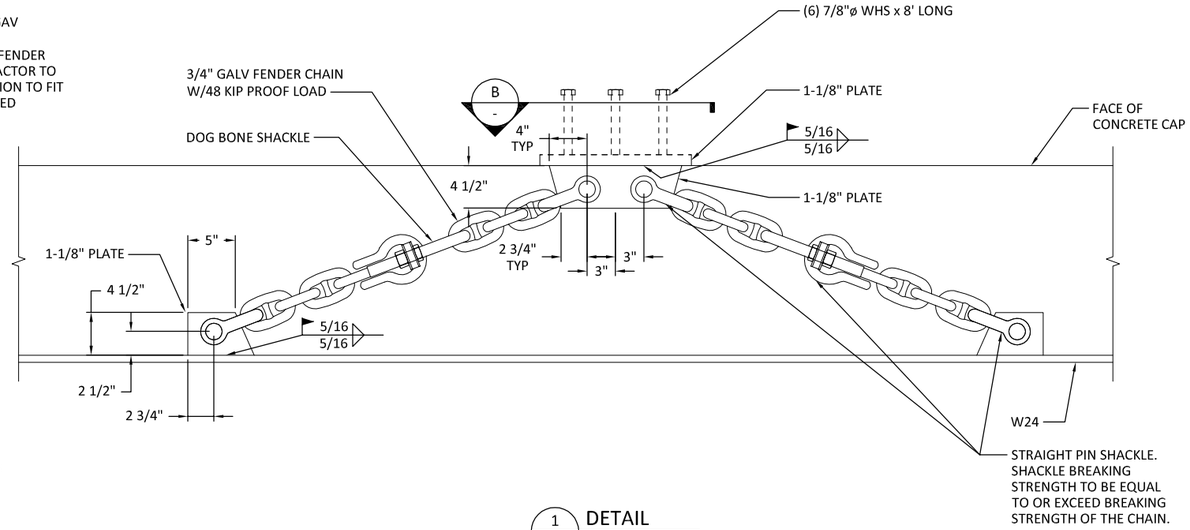
MAPLE ST. FENDER SYSTEM - DETAILS 1

S-25

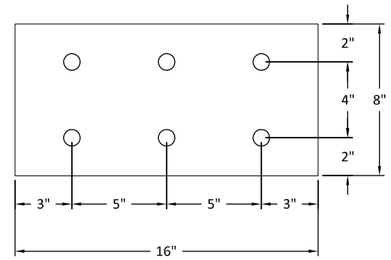
SHEET NO. 100 OF 104



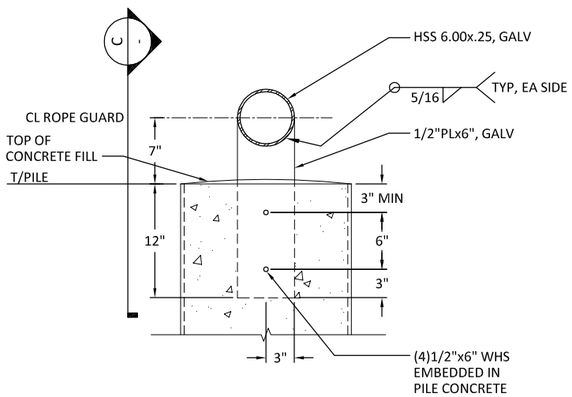
A / S-24 SECTION
SCALE: 1-1/2" = 1'-0"



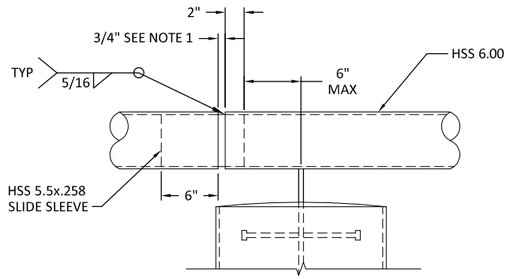
1 / S-25 DETAIL
SCALE: 1-1/2" = 1'-0"



B / - SECTION
SCALE: 3" = 1'-0"



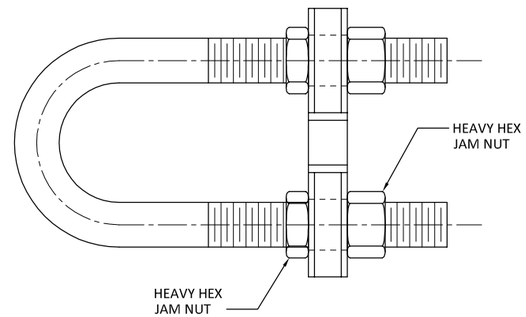
2 / S-24 DETAIL
SCALE: 1-1/2" = 1'-0"



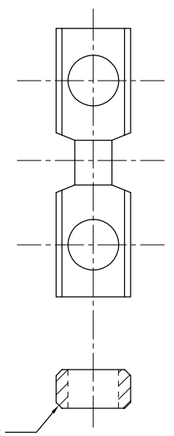
C / - ROPE GUARD SPLICE CONNECTION
SCALE: 1-1/2" = 1'-0"

NOTE 1:

GRIND THE ENDS OF SLIDE SLEEVE AND ROPE GUARD END ROUND (r=3/16"). ENSURE CORRECT FIT WHEN FABRICATING AND AGAIN, WHEN INSTALLING. GREASE SLIDE SLEEVE ONLY ON LONG END BEFORE FINAL INSTALL.



NOTES:
MARITIME INTERNATIONAL DOG BONE SHACKLE SHOWN SCHEMATICALLY. CONTRACTOR TO PROVIDE THIS PRODUCT OR EQUIVALENT. BREAK STRENGTH TO EQUAL OR EXCEED THE BREAK STRENGTH OF THE CHAIN.



DOG BONE SHACKLE DETAIL
SCALE: 6" = 1'-0"

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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ROBERT H. RILEY — STATE OF WASHINGTON — 33830 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

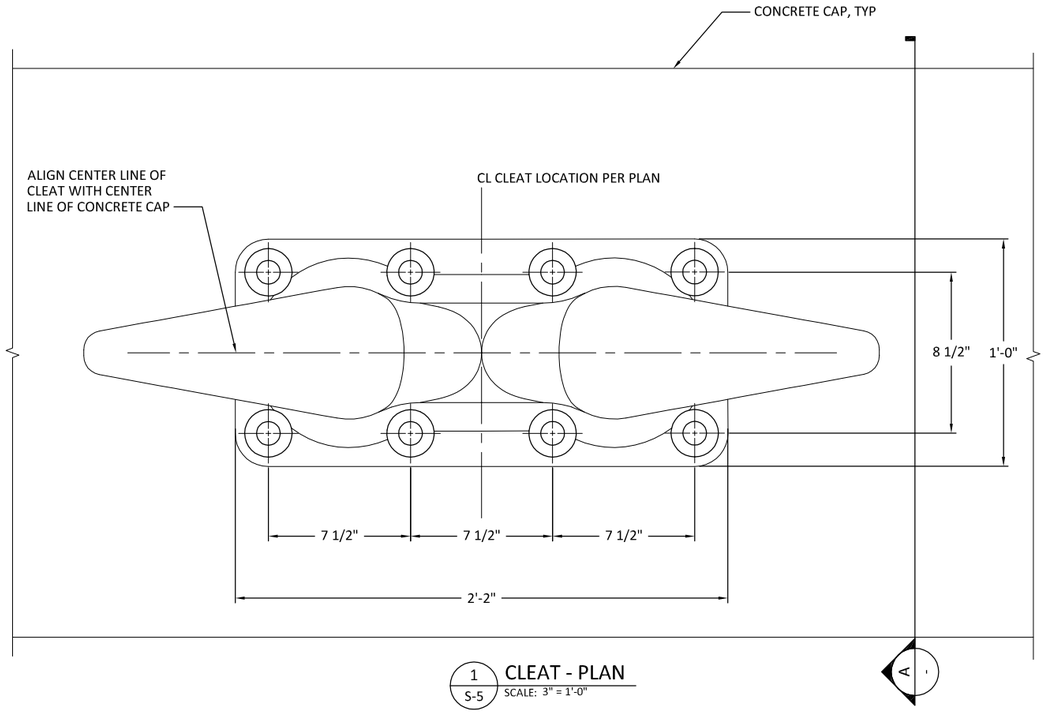
DESIGNED BY: EDE
DRAWN BY: GMC
CHECKED BY: TAH
APPROVED BY: RHR
SCALE: AS NOTED
DATE: MAY 2013

WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

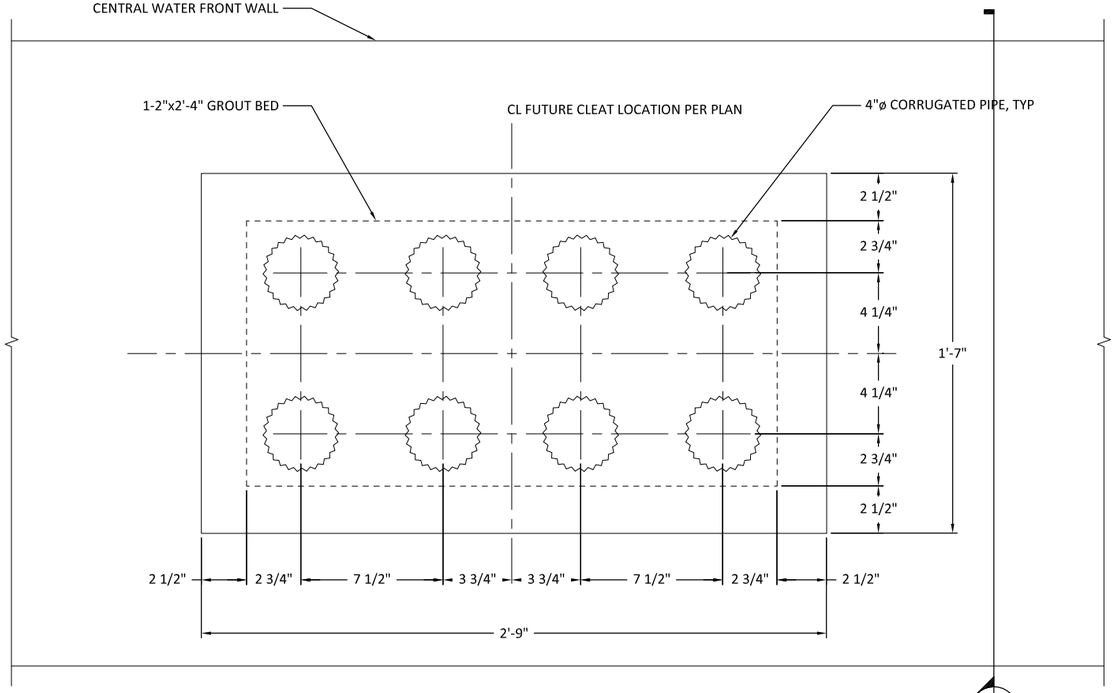
MAPLE ST. FENDER SYSTEM - DETAILS 2

S-26

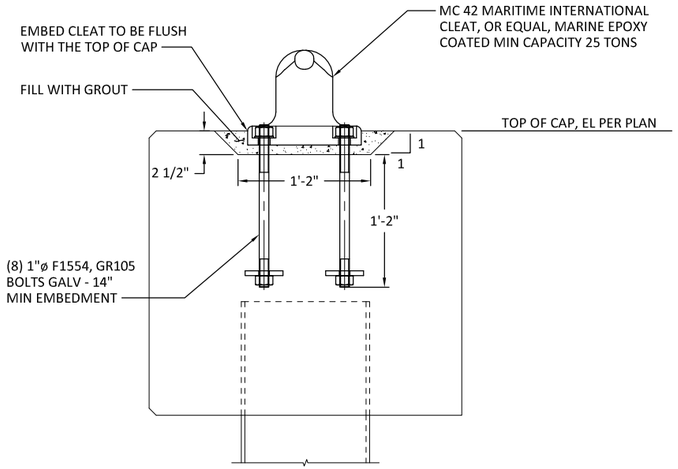
SHEET NO. **101** OF **104**



1 S-5 **CLEAT - PLAN**
SCALE: 3" = 1'-0"



2 S-5 **FUTURE CLEAT PLAN**
SCALE: 3" = 1'-0"



NEW CLEAT, TYP OF 8

A - **NEW CLEAT SECTION**
SCALE: 1-1/2" = 1'-0"

FUTURE CLEAT LOCATION AT WEST CENTRAL WATERFRONT WALL, TYP OF 4

B - **FUTURE CLEAT SECTION**
SCALE: 1-1/2" = 1'-0"

NOTES:

1. FOR CLEAT LOCATIONS SEE DRAWINGS S-6, S-7 AND S-8.
2. CAP REINFORCEMENT NOT SHOWN FOR CLARITY.

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 39839

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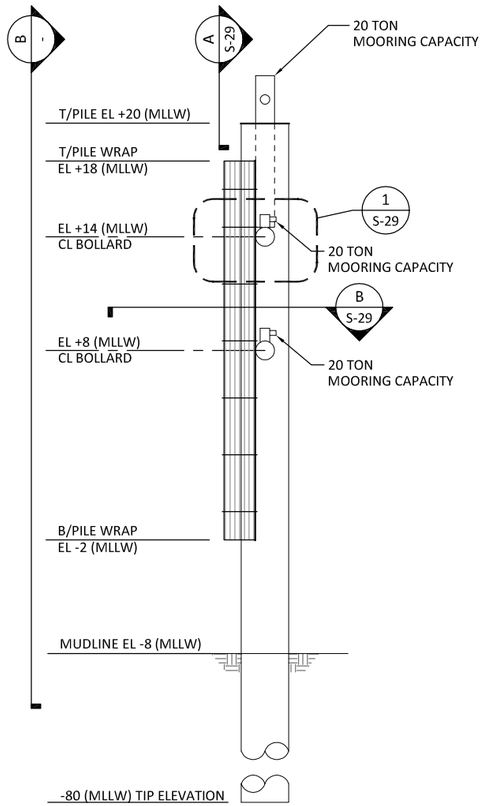
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

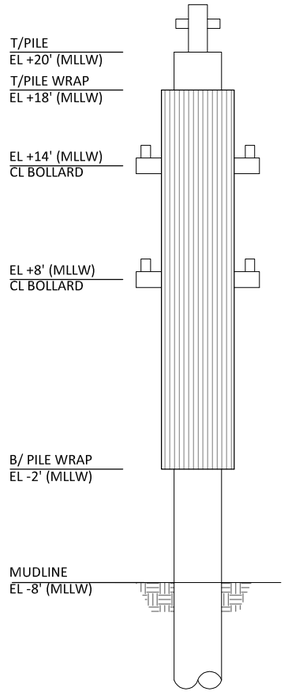
MOORING CLEAT DETAILS

S-27

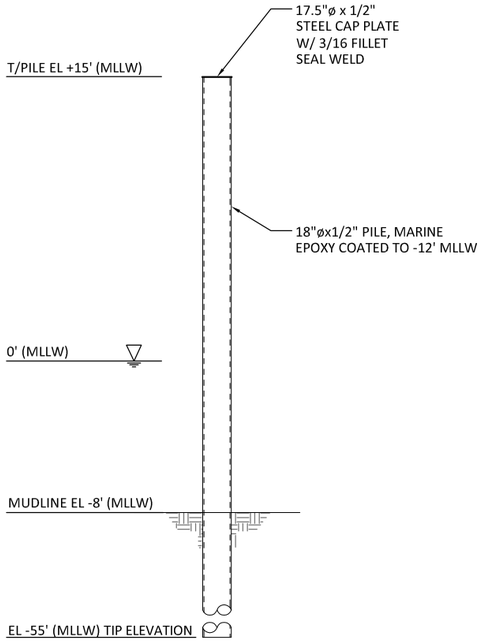
SHEET NO. **102** OF **104**



A S-5 MONOPILE DOLPHIN - ELEVATION 1
SCALE: 1/4" = 1'-0"



B - MONOPILE DOLPHIN - ELEVATION 2
SCALE: 1/4" = 1'-0"



C S-8 STEEL MOORING PILES - ELEVATION
SCALE: 1/4" = 1'-0"

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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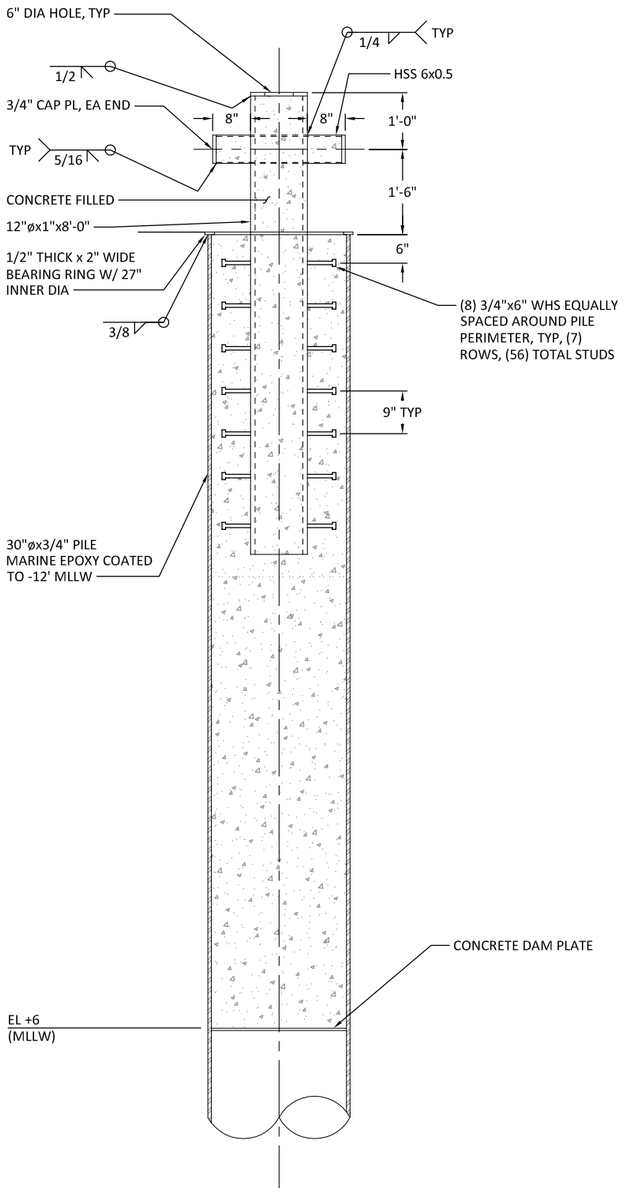
WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

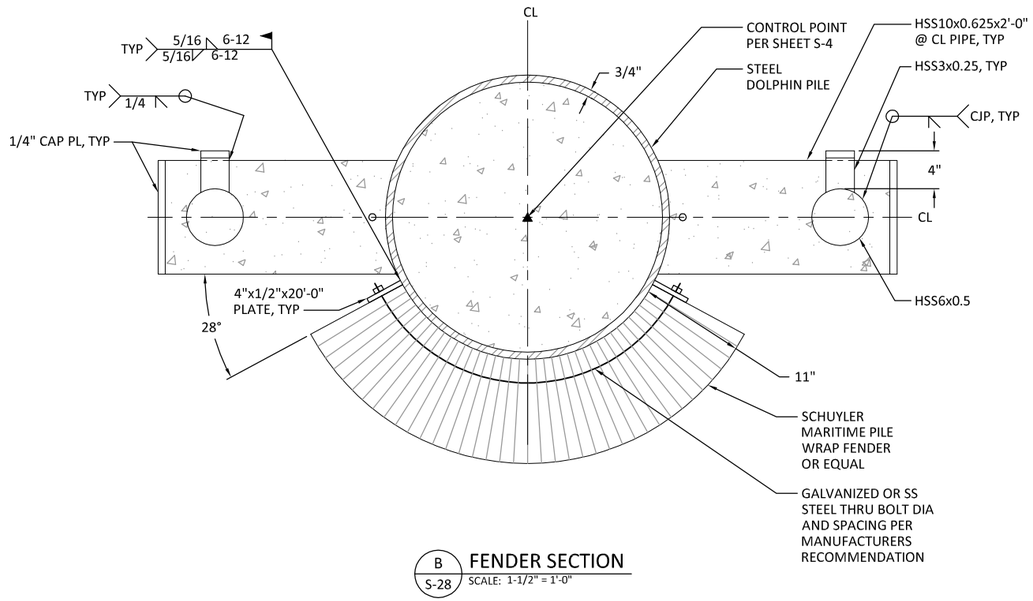
MONOPILE DOLPHIN - ELEVATION

S-28

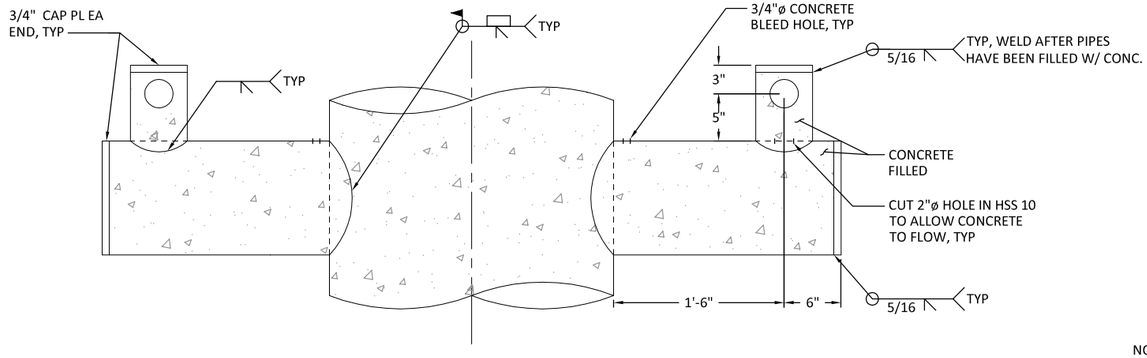
SHEET NO. **103** OF **104**



A S-28 STEEL DOLPHIN DETAIL
SCALE: 3/4" = 1'-0"



B S-28 FENDER SECTION
SCALE: 1-1/2" = 1'-0"



1 S-28 BOLLARD DETAIL
SCALE: 1-1/2" = 1'-0"

NOTE:

1. PILE, ALL BOLLARDS AND WELDS ARE TO BE MARINE EPOXY COATED.

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

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WHATCOM WATERWAY PHASE 1 CLEANUP
BELLINGHAM, WASHINGTON

MONOPILE DOLPHIN - DETAILS

S-29

SHEET NO. **104** OF **104**