

GOVERNMENT
OF CANADA

GOUVERNEMENT
DU CANADA

FISHERIES
AND OCEANS

^
PÊCHES
ET OCEANS



SMALL CRAFT HARBOURS
CENTRAL AND ARCTIC REGION

RONDEAU (ERIEAU) HARBOUR, ONTARIO
REQUEST FOR TENDER (100% SUBMISSION)

| <u>DESCRIPTION</u> | <u>LOCATION</u> | <u>SHEET NO.</u> |
|-------------------------------------|------------------------|------------------|
| 1. NOTES, ABBREVIATIONS AND LEGENDS | | S1 |
| 2. EXISTING CONDITION AND REMOVALS | STA. 0+000 TO 0+192 | S2 |
| 3. EXISTING CONDITION AND REMOVALS | STA. 0+178 TO 0+333 | S3 |
| 4. PROPOSED WORKS | STA. 0+000 TO 0+333 | S4 |
| 5. SSP PATCH REPAIR DETAILS | STA. 0+032 TO 0+083 | S5 |
| 6. SSP PATCH REPAIR DETAILS | STA. 0+105 TO 0+326.5 | S6 |
| 7. EXISTING DECK AND PARAPET | STA. 0+000 TO 0+333 | S7 |
| 8. PROPOSED DECK AND PARAPET | STA. 0+080 TO 0+325.1 | S8 |
| 9. TOE PIN DETAILS | STA. 0+000 TO 0+30 | S9 |
| 10. TOE PIN DETAILS | STA. 0+030 TO 0+50 | S10 |
| 11. LADDER, FENDER AND BOLLARD | STA. 0+000 TO 0+300 | S11 |
| 12. NORTH END NEW SECTION | STA. 0+323 TO 0+333 | S12 |
| 13. NORTH END CONNECTION DETAILS | STA. 0+323 TO 0+333 | S13 |
| 14. JOINT AND BREAKWATER | STA. 0+000 TO 0-335(S) | S14 |
| 15. STEEL PIPE CURB DETAIL | STA. 0+080 TO 0+325.1 | S15 |

GENERAL NOTES:

- ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE NATIONAL MASTER SPECIFICATION (NMS).
- CONTRACTOR TO ACCESS SITE VIA MARINER ROAD AND WITH USE OF A BARGE FOR SELECT CONSTRUCTION.
- IN WATER CONSTRUCTION TIMING TO BE CONFIRMED WITH DFO (FISHERIES AND OCEANS CANADA).
- SAFEGUARD ALL EXISTING STRUCTURES, SERVICES AND UTILITIES WHICH WILL BE AFFECTED BY THE WORK OF THIS CONTRACT.
- BEFORE PROCEEDING WITH THE WORK, CHECK AND VERIFY ALL DIMENSIONS AND ALL ELEVATIONS SHOWN ON THE DRAWINGS AND REPORT ANY DISCREPANCIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENVIRONMENTAL PROTECTION AND CONSTRAINTS DURING PERFORMANCE OF THE WORK.
- ACCESS PERMISSION FOR INSTALLATION SHALL BE COORDINATED WITH SMALL CRAFT HARBOURS.
- THE CONTRACTOR SHALL EMPLOY THE SERVICES OF AN UNDERWATER DIVER TO GUIDE THE REMOVAL OF OBSTRUCTIONS ALONG SITE OF PILING WORK AND PRECAST CONCRETE PANELS INSTALLED BETWEEN PILES, PRIOR TO PILING DRIVING, AS WELL AS CONFIRM THE PLATE DIMENSIONS FOR REPAIRS ALONG THE EXISTING STEEL SHEET PILE WALLS.
- ALL DIMENSIONS IN MILLIMETERS, UNLESS OTHERWISE NOTED.

CONSTRUCTION NOTES:

- THE LOCATION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UTILITIES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN THE ACCURACY OF THE LOCATION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- BEFORE STARTING WORK THE CONTRACTOR SHALL LOCATE ALL UTILITIES AND SHALL PROTECT THEM FROM DAMAGE.
- ALL WORK SHALL MEET THE MINIMUM STANDARDS OF THE SPECIFICATIONS AND THE OCCUPATIONAL HEALTH AND SAFETY ACT (OHSA).
- ENVIRONMENTAL APPLICATIONS HAVE BEEN FILED WITH VARIOUS AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENVIRONMENTAL PROTECTION AND CONSTRAINTS DURING PERFORMANCE OF THE WORK.
- ALL TREES, FACILITIES AND MISCELLANEOUS OBSTRUCTIONS TO THE WORK ARE NOT NECESSARILY SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL COMPLETE A VISUAL SITE REVIEW PRIOR TO THE BID AND PRIOR TO UNDERTAKING THE WORK.
- THE CONTRACTOR SHALL INSTALL AND MAINTAIN A SECURE SITE PERIMETER FENCE AT ALL TIMES DURING CONSTRUCTION. FENCING SHALL INCLUDE SIGNAGE NOTIFYING PUBLIC OF HAZARDS. LOCKABLE GATES SHALL BE INSTALLED TO PROVIDE VEHICLE AND PERSONNEL ACCESS.
- ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
- THE CONTRACTOR SHALL PREPARE AND MAINTAIN A WORKING AS-BUILT FULL SIZE "REDLINE" MARKUP SET OF THE CONTRACT DRAWINGS. WORKING AS BUILTS SHALL BE KEPT CURRENT ON A WEEKLY BASIS AND BE AVAILABLE ON THE JOB SITE AT ALL TIMES. THE "REDLINE" SET SHALL DEPICT ALL CURRENT VARIATIONS/DEVIATIONS (INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: ADDENDUMS, CHANGE ORDERS, FIELD ADJUSTMENTS, EXISTING AND NEW UTILITY LINES). MEASUREMENTS ARE TO BE SHOWN FOR ALL CHANGE OF DIRECTION POINTS AND ALL COMPONENTS. THESE SHALL BE SHOWN WITH TWO OFFSET DISTANCES TO PERMANENTLY FIXED FEATURES.

PILE NOTES:

- PILE SPACING IS MEASURED AT THE CENTER OF EVERY FOURTH IN-PAN.
- PROVIDE UP-TO-DATE DATA ON ALIGNMENT AND PILE SPACING THROUGHOUT INSTALLATION (TOP OF PILE AT RIVERBED).
- PILE LENGTHS ARE THEORETICAL LENGTHS BELOW CUT-OFF.
- NO PILES SHALL BE SPLICED.

REFERENCE PLANS:

EXISTING DETAILS OF THE WEST PIER HAVE BEEN DERIVED FROM DRAWINGS BY PUBLIC WORKS OF CANADA DATED 1935, 1936, AND 1960, RIGGS ENGINEERING DATED 2006.

SURVEY INFORMATION:

- SURVEY INFORMATION PROVIDED BY FISHERIES AND OCEANS CANADA, MAY 2016.
- ELEVATIONS ARE PROVIDED IN RELATION TO CHART DATUM (LEVEL 0.00) RELATIVE TO IGLD 1985 (ELEVATION 173.5), UNLESS OTHERWISE NOTED.

MATERIAL SPECIFICATIONS:

- CONCRETE: IN ACCORDANCE WITH CSA STANDARD A23.1 AND A23.2.
CLASS OF CONCRETE: 35 MPa
REMAINDER 35 MPa
- CLEAR COVER TO REINFORCING STEEL:
PRECAST 50 +/- 10mm
REMAINDER 70 +/- 20mm UNLESS NOTED OTHERWISE
- STRUCTURAL CONCRETE: EXPOSURE CLASSIFICATION C-1.
- REINFORCING STEEL: CSA STANDARD G30.18, GRADE 400W, DEFORMED BARS.
- STRUCTURAL STEEL: CSA STANDARD G40.20/G40.21, GRADE 350W ROLLED SECTIONS, 300W PLATES.
- SHEET PILING: CSA STANDARD G40.21, GRADE 350W OR ASTM A572, GRADE 50.
- BOLTS: ASTM A325M (25mm DIAMETER, UNLESS NOTED OTHERWISE).
- TIE BACKS: DYWIDAG GRADE 75, #10 OR EQUAL.
- WELDING: CSA STANDARD W59 PERFORMED BY WELDERS MEETING THE REQUIREMENTS OF CSA STANDARD W47.
- UNLESS OTHERWISE NOTED THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

| MATERIAL THICKNESS OF THICKER PART JOINED (mm) | MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm) |
|------------------------------------------------|----------------------------------------------|
| TO 12 INCLUSIVE | 5 |
| OVER 12 TO 20 | 6 |
| OVER 20 TO 40 | 8 |
| OVER 40 TO 60 | 10 |
| OVER 60 TO 80 | 12 |

LEGEND:

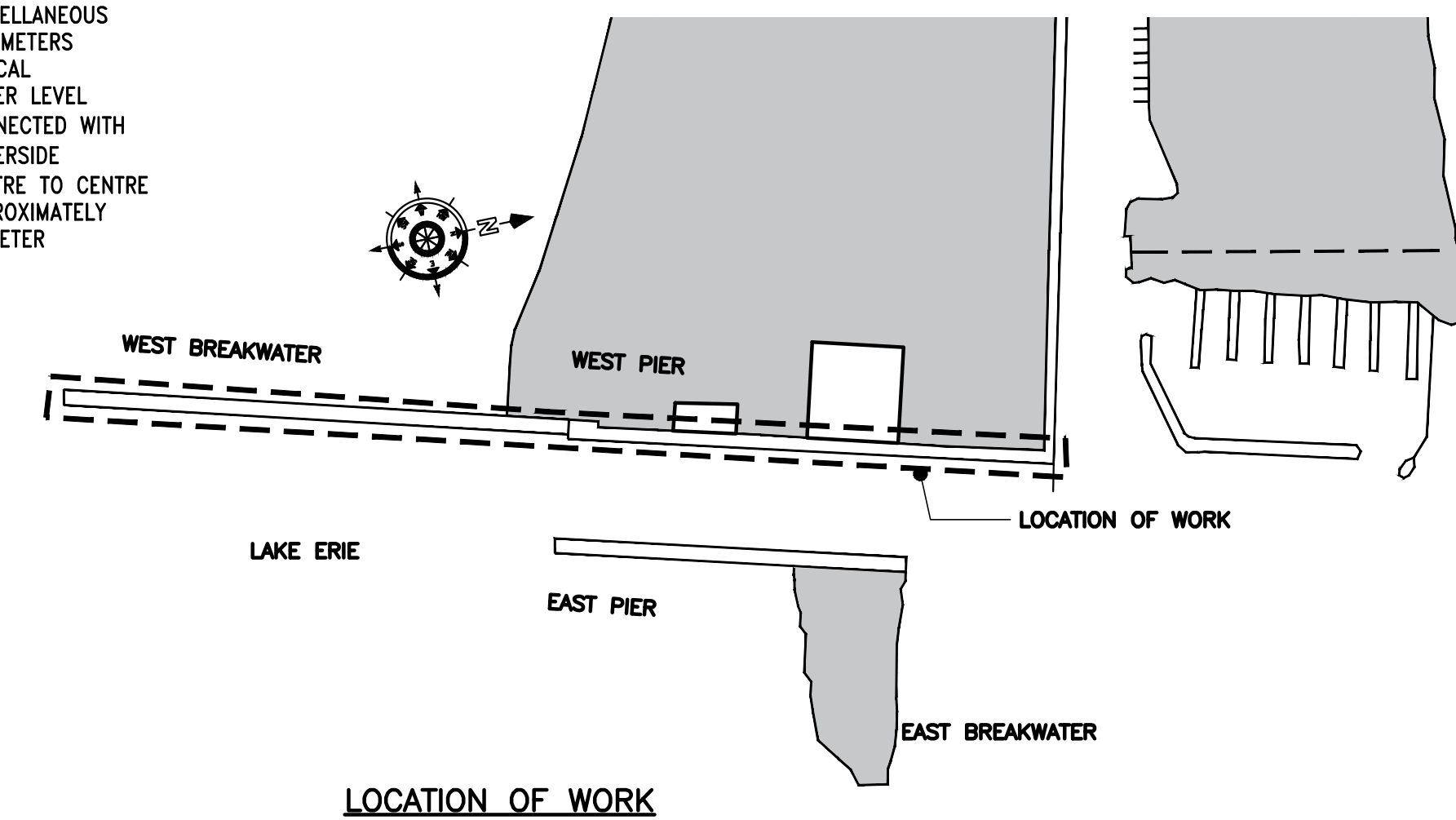
| | | | |
|--|-------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------|
| | SEWER | | SHEET PILE DEPRESSION |
| | 150x200 I-BEAM | | IN-PAN |
| | TIE ROD/COUPLER | | OUT-PAN |
| | INTERLOCK SEPARATED | | ASPHALT TOPPED CONCRETE DECK REMOVAL |
| | 4.50m DEPTH OF WATER (VARIES) | | DOWEL |
| | PL12 STEEL ANCHOR PLATE | | ASPHALT TOPPED CONCRETE DECK |
| | PLUG WELD BETWEEN STEEL PLATE & SSP | | CONCRETE |
| | J-BOLT BETWEEN STEEL PLATE & SSP | | VOID OR MISSING SHEET PILE |
| | STEEL SHEET PILE | | PL12 STEEL PLATE |
| | BOAT ANCHOR PLACE (BOLLARD) | | STEEL CHANNEL COVER |
| | ± 174.65 WATER ELEVATION (VARIES) | | EXISTING REPAIR PLATE |
| | HSS TOE PIN | | FILLET WELD SYMBOL PITCH (DISTANCE BETWEEN CENTERS OF INCREMENTS) LENGTH OF INCREMENTS FIELD WELD SIZE (LENGTH OF LEG) |
| | TIE ROD NUT BOLT | | PLUG WELD SYMBOL ANGLE OF COUNTERSINK DEPTH OF FILLING DIA. OF HOLE |
| | | | GEOTEXTILE |
| | | | GRANULAR A |
| | | | GRANULAR B |

ABBREVIATIONS:

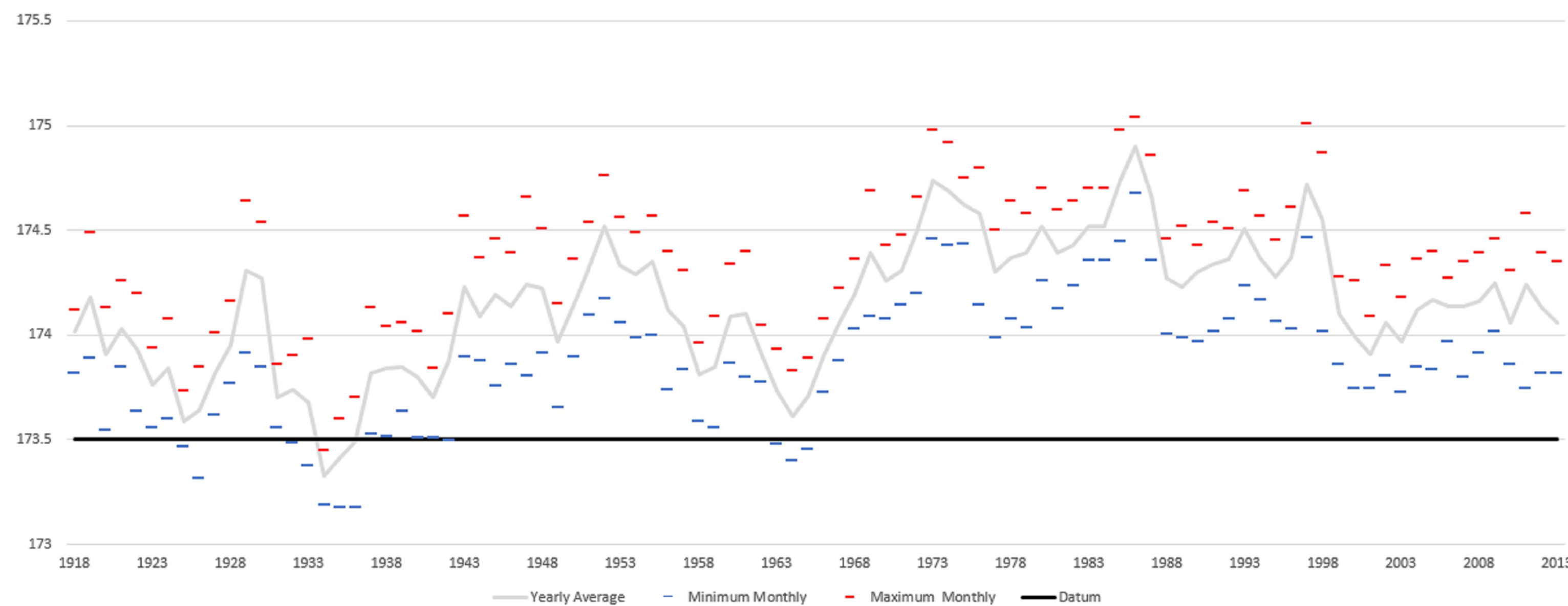
| | | | |
|----------|---------------------------------|---------|-------------------|
| CONC. | CONCRETE | STA. | STATION |
| CL. | CENTRE LINE | SSP. | STEEL SHEET PILES |
| ELE. | ELEVATION | MISC. | MISCELLANEOUS |
| EXIST. | EXISTING | MM | MILLIMETERS |
| GRAN. | GRANULAR | TYP. | TYPICAL |
| HWL | HIGH WATER LEVEL | WL | WATER LEVEL |
| I.G.L.D. | INTERNATIONAL GREAT LAKES DATUM | C/W | CONNECTED WITH |
| | METERS | U/S | UNDERSIDE |
| m | METERS | C/C | CENTRE TO CENTRE |
| MAX. | MAXIMUM | APPROX. | APPROXIMATELY |
| MIN. | MINIMUM | DIA. | DIAMETER |

BID SCENARIOS:

- BID SCENARIO A TO INCLUDE ALL WORK SHOWN IN PACKAGE EXCEPT BREAKWATER ARMOUR STONE PROTECTION AS SHOWN ON S14.
- BID SCENARIO B TO INCLUDE ALL WORK SHOWN IN PACKAGE.



WATER LEVEL CHART - LAKE ERIE (1918-2013)



WATER LEVEL CHART

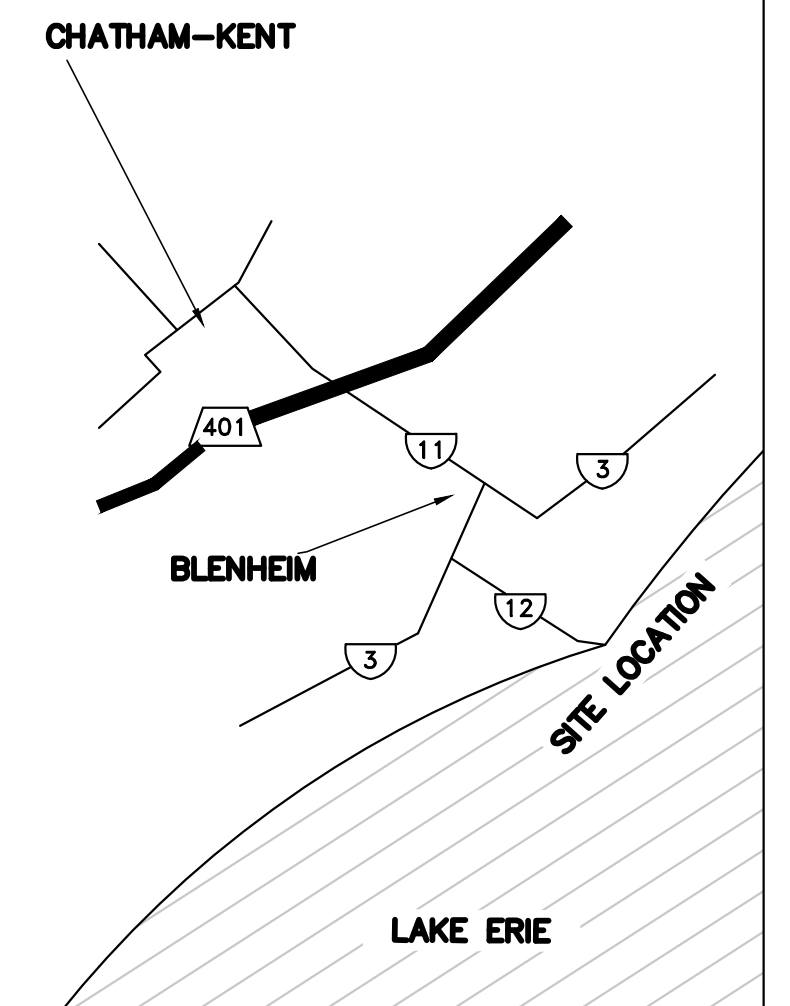


KEY MAP

**SMALL CRAFT HARBOURS
CENTRAL AND ARCTIC REGION**



KEY MAP



PLANMAC ENGINEERING INC.

80 North Queen Street, Suite 302
Toronto, ON, Canada, M8Z 2C9
Tel. (416) 626 - 5300 FAX: (416) 622 - 6710

| | | |
|------------|--------------------|------------|
| REVISIONS: | DATE: | |
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |
| SCALE: | CLASS: | |

PROJECT:
WEST PIER REHABILITATION

DESCRIPTION:
NOTES, ABBREVIATIONS, AND LEGEND

DRAWN: **S.D.** APPROVED: **R.I.M.**

DATE: **MAR 2017**

LOCATION:
RONDEAU (ERIEAU) HARBOUR ONTARIO





DRAWING NO.: **1** LOCATOR CODE: **4797**



NOTES

- 1: ALL REMOVALS TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATIONS
- 2: REMOVALS INCLUDE: ASPHALT, REINFORCED CONCRETE, CONCRETE, STEEL PIPE CURB, BOLLARD, TREE, TIMBER PILES AND SECTION AT NORTH END

LEGEND

-  INTERLOCK SEPARATED
-  VOID OR MISSING SHEET PILE
-  SHEET PILE DEPRESSION
-  EXISTING REPAIR PLATE



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|------------|--------------------|------------|
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

SCALE: **1:300** CLASS:

PROJECT:
WEST PIER PLAN REHABILITATION

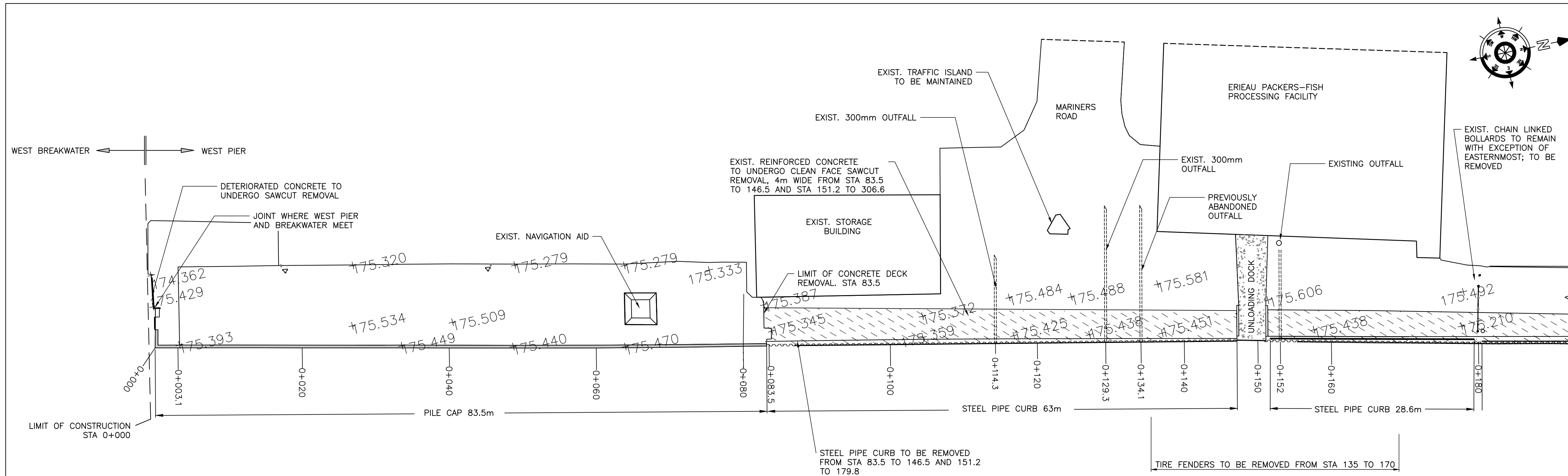
DESCRIPTION:
**EXISTING CONDITION AND REMOVALS
 STA. 0+000 TO 0+192**

DRAWN: **S.D.** APPROVED: **R.I.M.**

DATE: **MAR 2017** DATE:

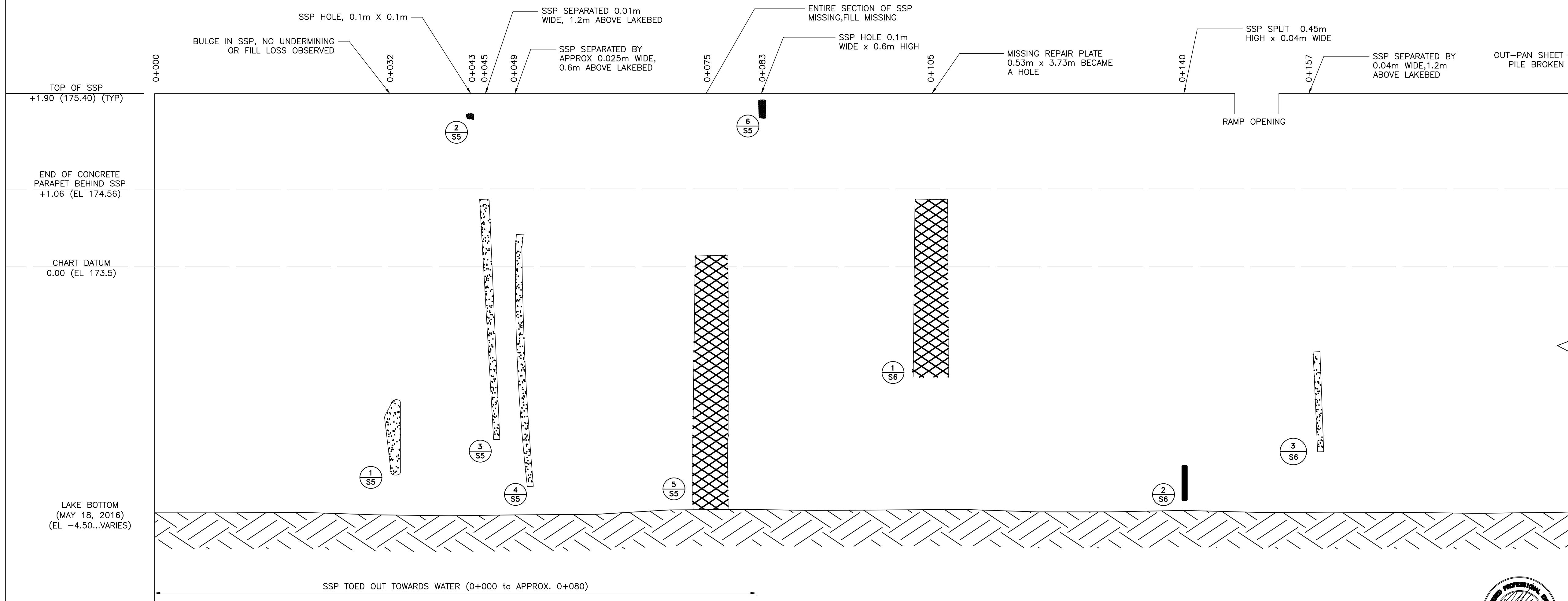
LOCATION:
RONDEAU (ERIEAU) HARBOUR ONTARIO

DRAWING NO.: **2** LOCATOR CODE: **4797**



**WEST PIER EXISTING CONDITION AND REMOVALS (PLAN VIEW)
 STA. 0+000 TO 0+192**

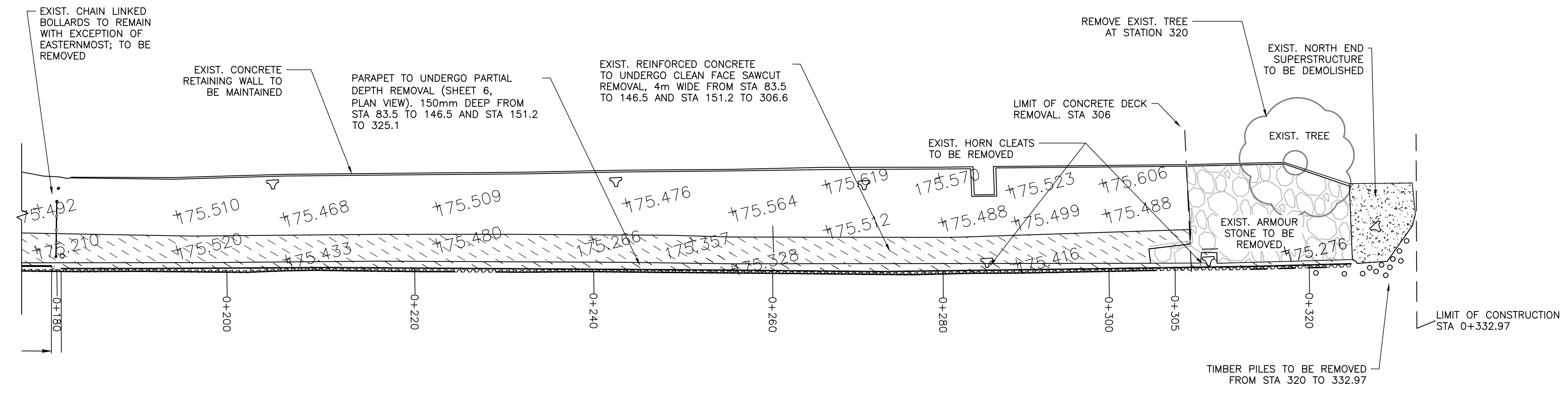
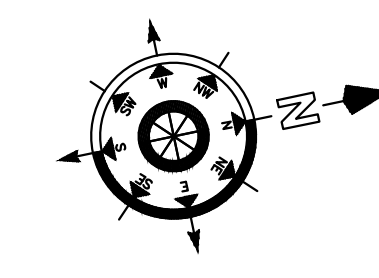
SCALE: 1:300



**EXISTING STEEL SHEET PILE ELEVATION VIEW
 STATION 0+000 TO 0+192**

SCALE: 1:300





WEST PIER EXISTING CONDITION AND REMOVALS (PLAN VIEW)
STATION 0+178 TO 0+326.5

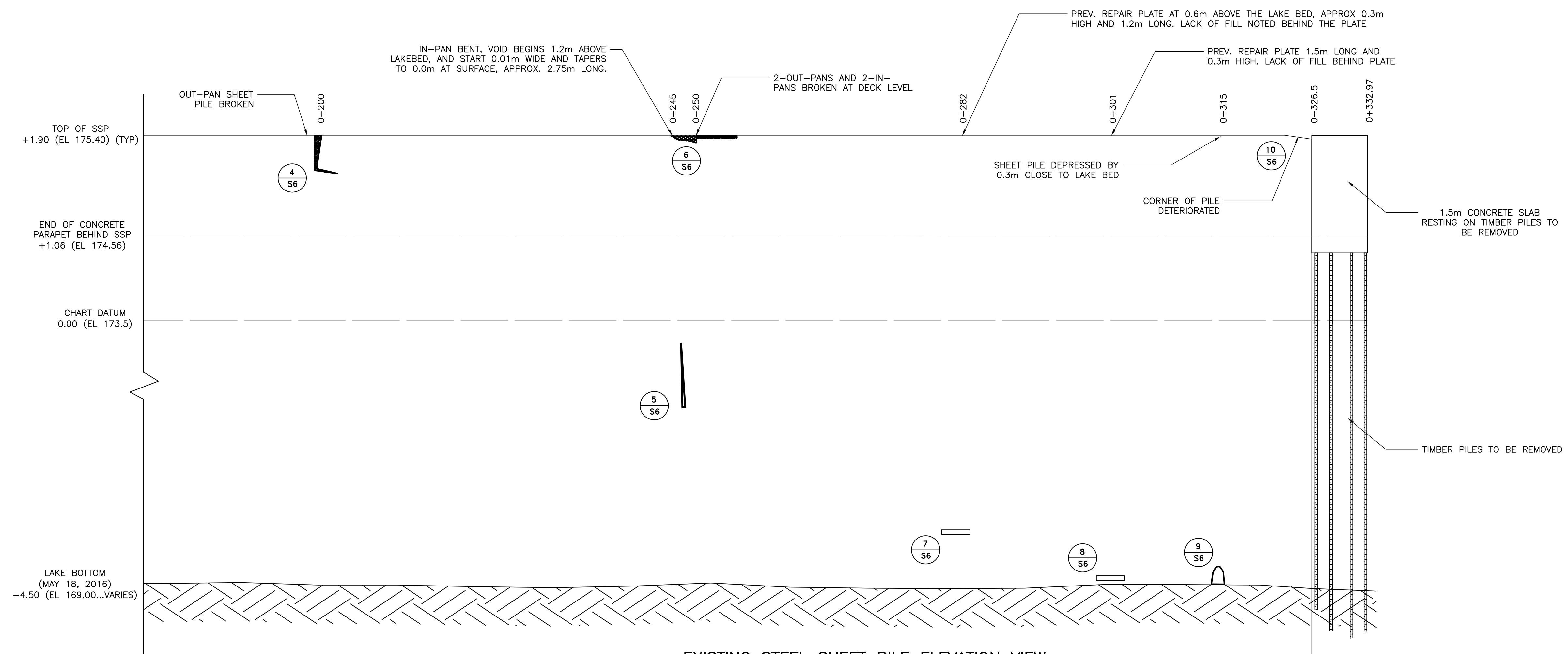
SCALE: 1:300

NOTES

- 1: ALL REMOVALS TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATIONS
- 2: REMOVALS INCLUDE: ASPHALT, REINFORCED CONCRETE, CONCRETE, STEEL PIPE CURB, BOLLARD, TREE, TIMBER PILES AND SECTION AT NORTH END

LEGEND

- INTERLOCK SEPARATED
- VOID OR MISSING SHEET PILE
- SHEET PILE DEPRESSION
- EXISTING REPAIR PLATE



EXISTING STEEL SHEET PILE ELEVATION VIEW
STATION 0+178 TO 0+333

SCALE: 1:300



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| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

SCALE: **1:300** CLASS:

PROJECT:
WEST PIER PLAN REHABILITATION

DESCRIPTION:
**EXISTING CONDITION AND REMOVALS
STA. 0+176 TO 0+333**

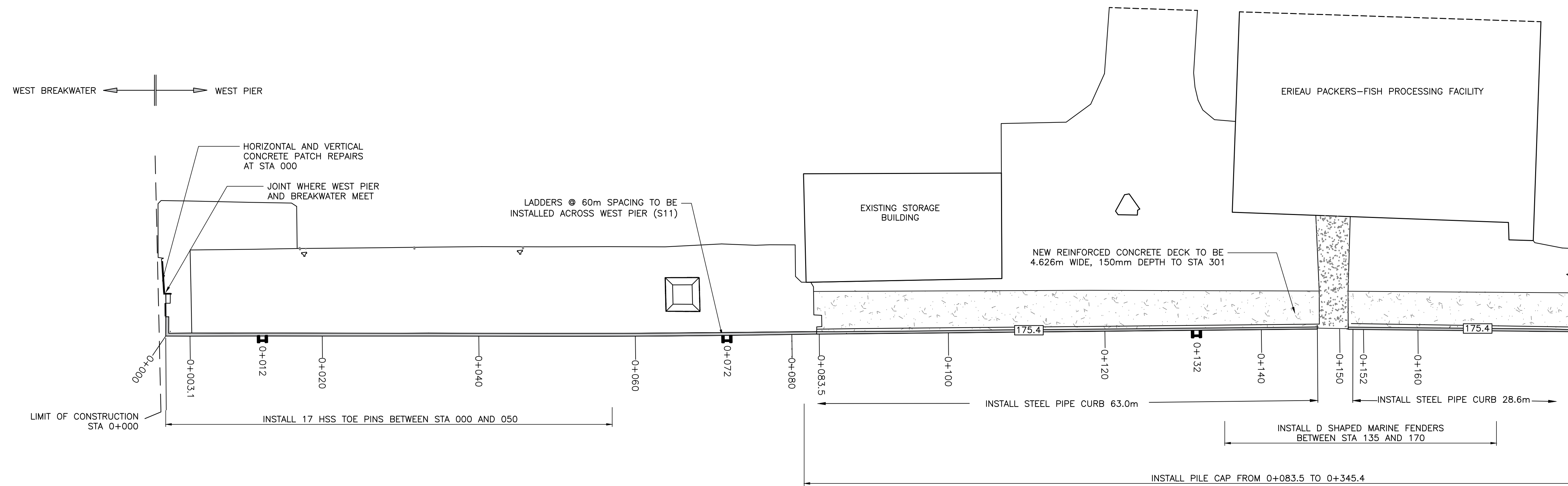
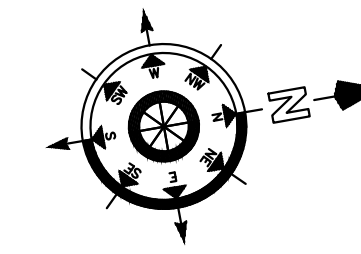
DRAWN: **S.D.** APPROVED: **R.I.M.**

DATE: **MAR 2017**

LOCATION:
RONDEAU (ERIEAU) HARBOUR ONTARIO

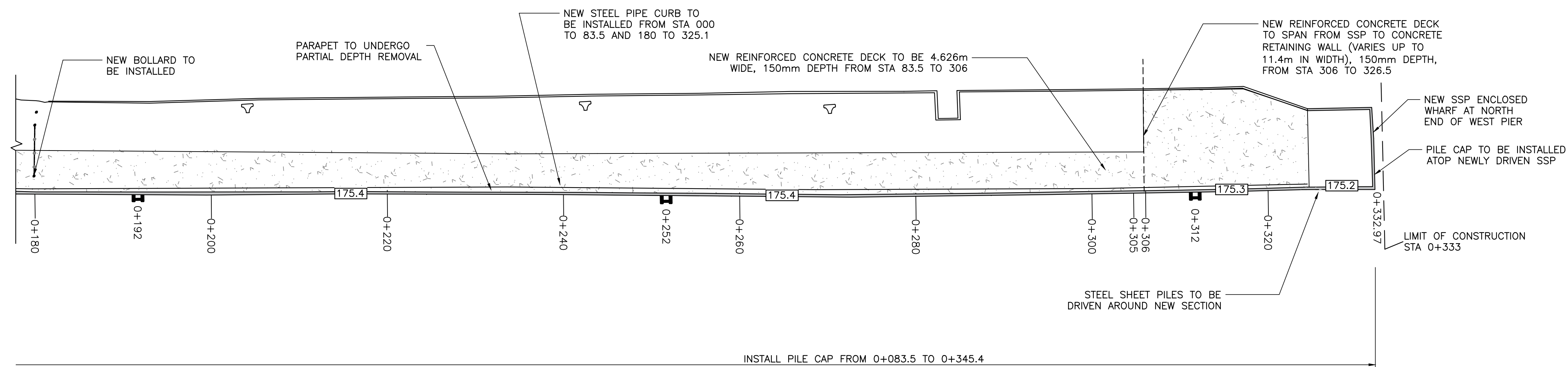
DRAWING NO.: **3** LOCATOR CODE: **4797**





WEST PIER PROPOSED WORKS (PLAN VIEW)
STATION 0+000 TO 0+178

SCALE: 1:300



WEST PIER PROPOSED WORKS (PLAN VIEW)
STATION 0+178 TO 0+333

SCALE: 1:300

NOTES

- 1: ALL WORKS TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATIONS
- 2: PROPOSED WORKS INCLUDE: STEEL SHEET PILE PATCH REPAIRS, REINFORCED CONCRETE DECK, STEEL PILE CAP, STEEL PIPE CURB, TOE PINS, LADDERS, FENDERS, BOLLARD, NORTH SECTION REHABILITATION, JOINT REPAIR AND BREAKWATER PROTECTIVE MEASURES (SCENARIO B)



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|------------|--------------------|
| 4 | 100% SUBMISSION |
| 3 | 99% SUBMISSION |
| 2 | 66% SUBMISSION |
| 1 | PRELIMINARY DESIGN |

| | |
|---------------|--------|
| SCALE: | CLASS: |
| 1: 300 | |

PROJECT:
WEST PIER REHABILITATION

DESCRIPTION:
**PROPOSED WORKS
 STA. 0+000 TO 0+333**

| | |
|-------------|---------------|
| DRAWN: | APPROVED: |
| S.D. | R.I.M. |

| | |
|-----------------|-------|
| DATE: | DATE: |
| MAR 2017 | |

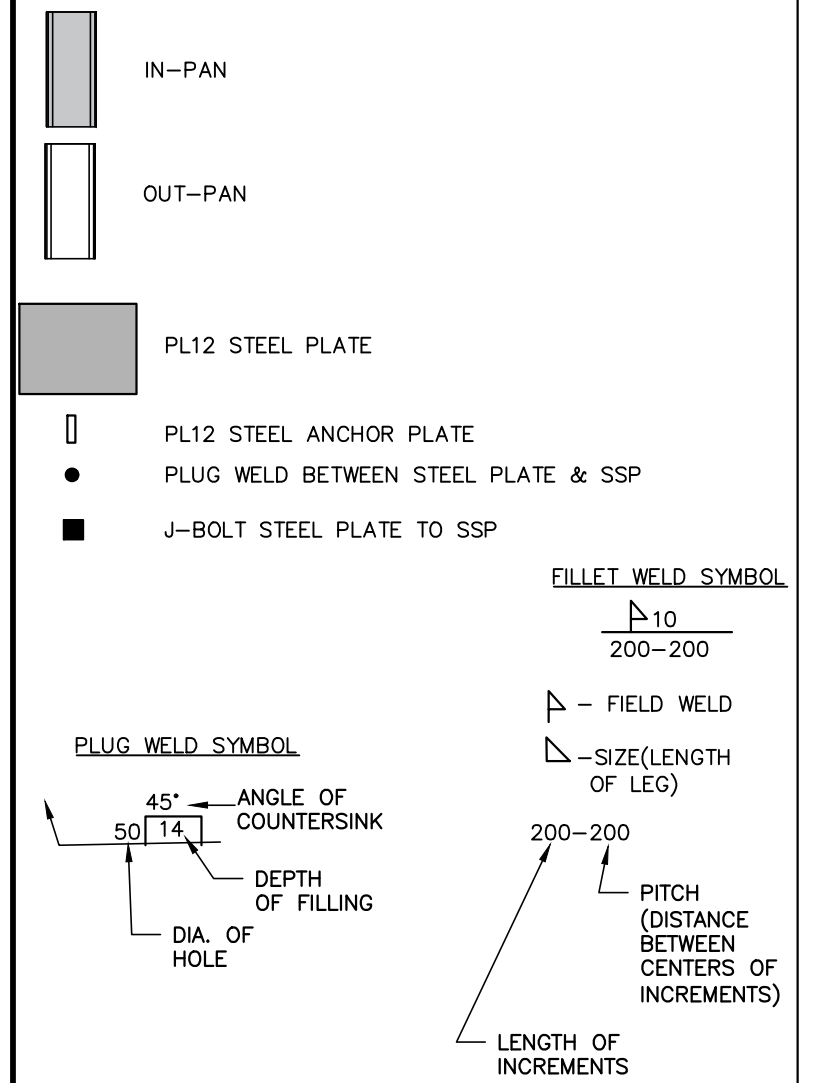
LOCATION:
**RONDEAU (ERIEAU)
 HARBOUR
 ONTARIO**

| | |
|--------------|---------------|
| DRAWING NO.: | LOCATOR CODE: |
| 4 | 4797 |





LEGEND



| REVISIONS: | DATE: |
|------------|-------------------------------|
| 4 | 100% SUBMISSION 2017-03-31 |
| 3 | 99% SUBMISSION 2017-03-17 |
| 2 | 66% SUBMISSION 2017-02-24 |
| 1 | PRELIMINARY DESIGN 2016-12-01 |

SCALE: AS NOTED CLASS:

PROJECT: WEST PIER REHABILITATION

DESCRIPTION: SSP PATCH REPAIR DETAILS STA. 0+032 TO 0+083

DRAWN: K.P. APPROVED: R.I.M.

DATE: MAR 2017 DATE:

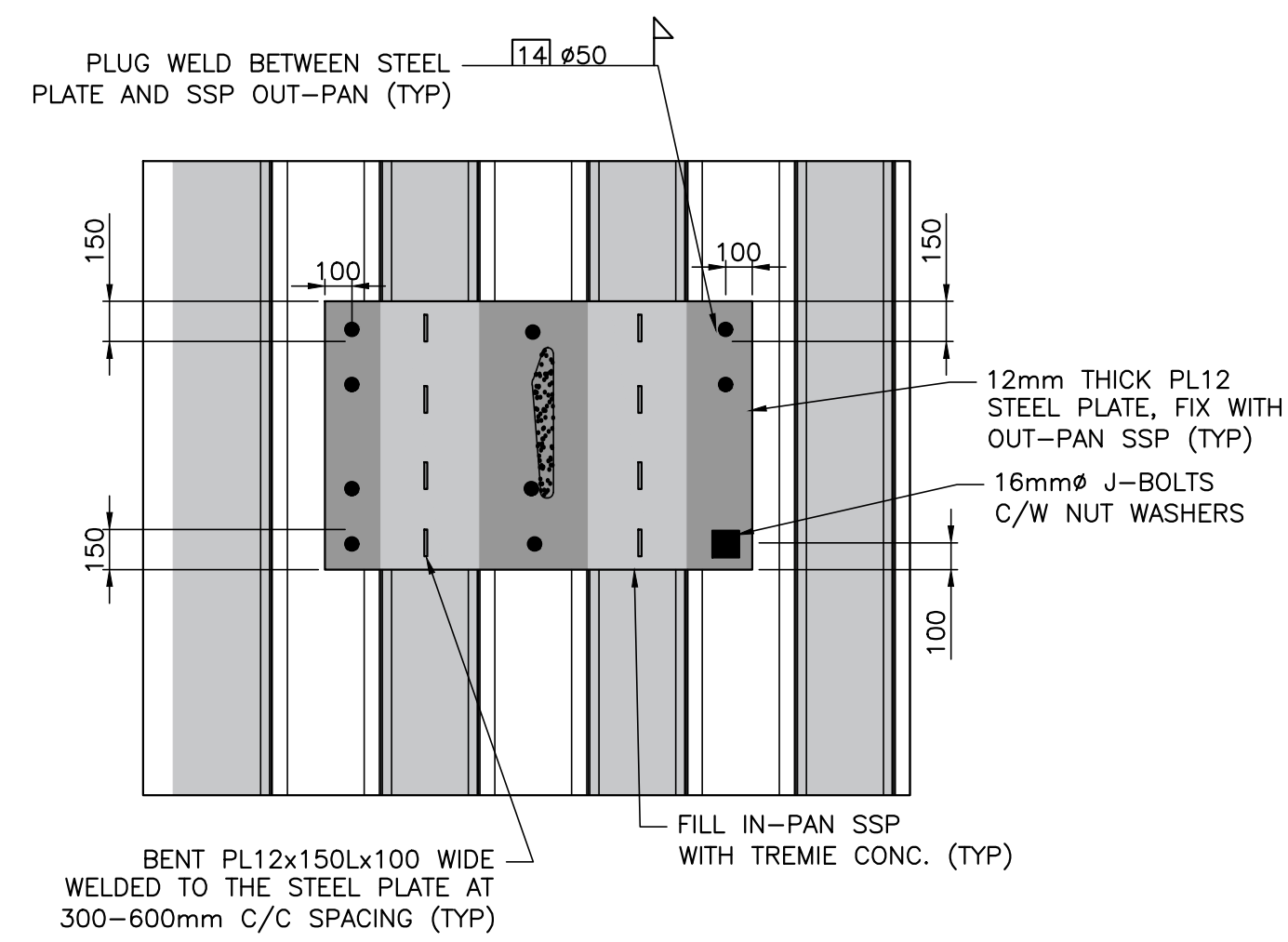
LOCATION: RONDEAU (ERIEAU) HARBOUR ONTARIO

DRAWING NO.: 5 LOCATOR CODE: 4797

NOTES

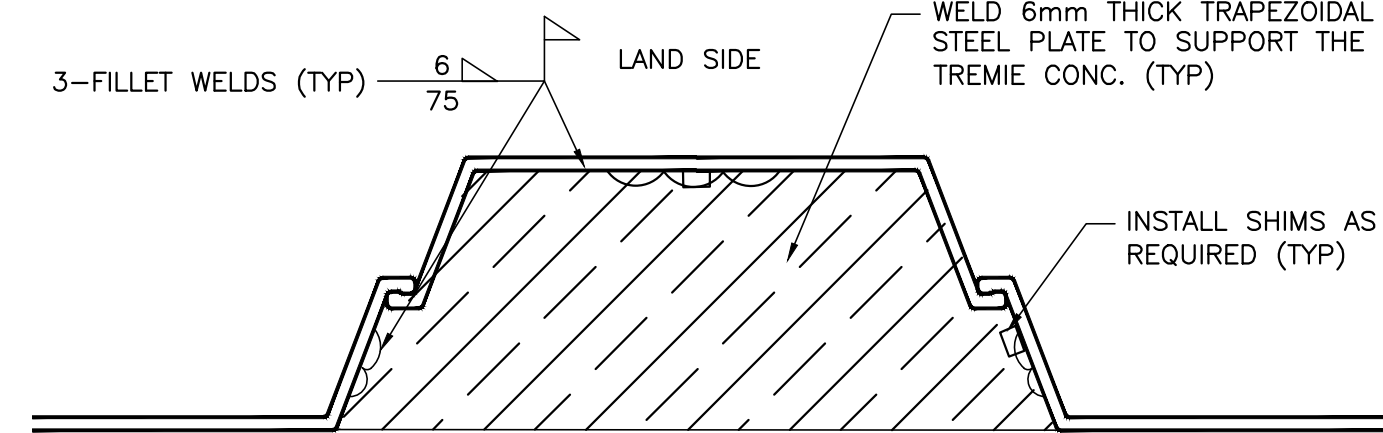
J-BOLT CONNECTIONS HAVE BEEN USED AT ALL LOCATIONS BELOW THE EXTENT OF THE CONCRETE PARAPET (BEHIND SSP WALL).

FOR CONNECTION LOCATIONS WITHIN THE EXTENT OF THE CONCRETE PARAPET, PLUG WELDS ARE USED.



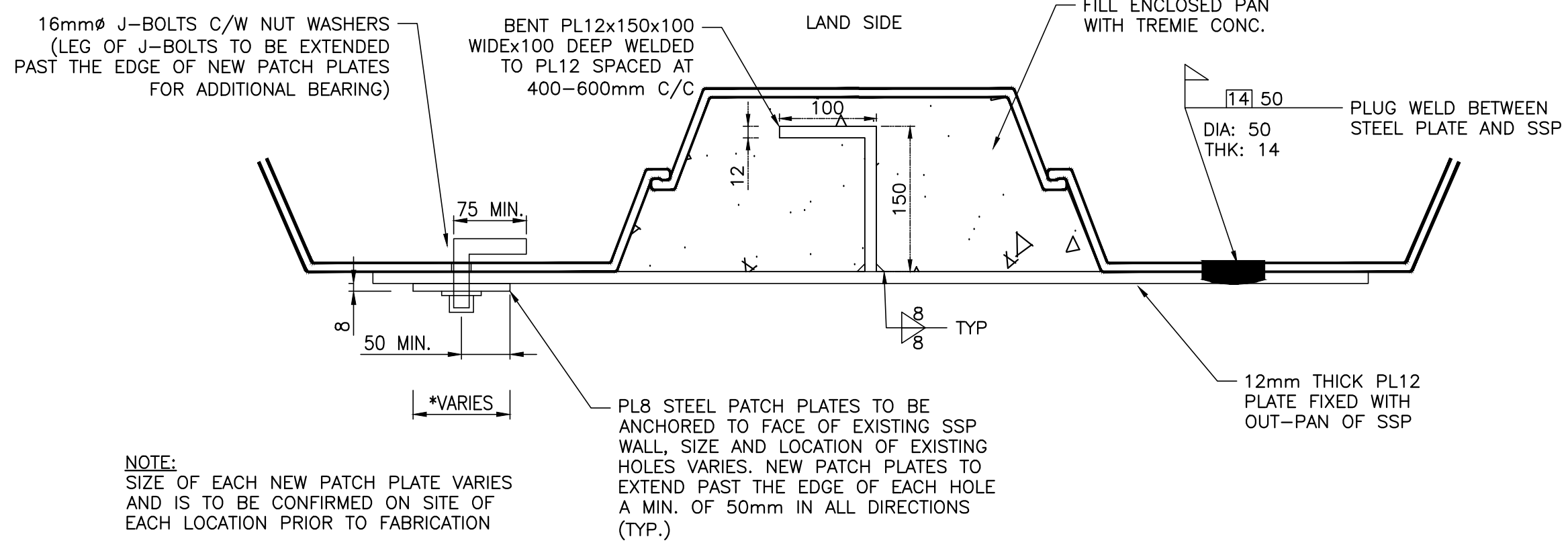
TYPICAL STEEL PLATE CONNECTION DETAILS

SCALE: 1:20



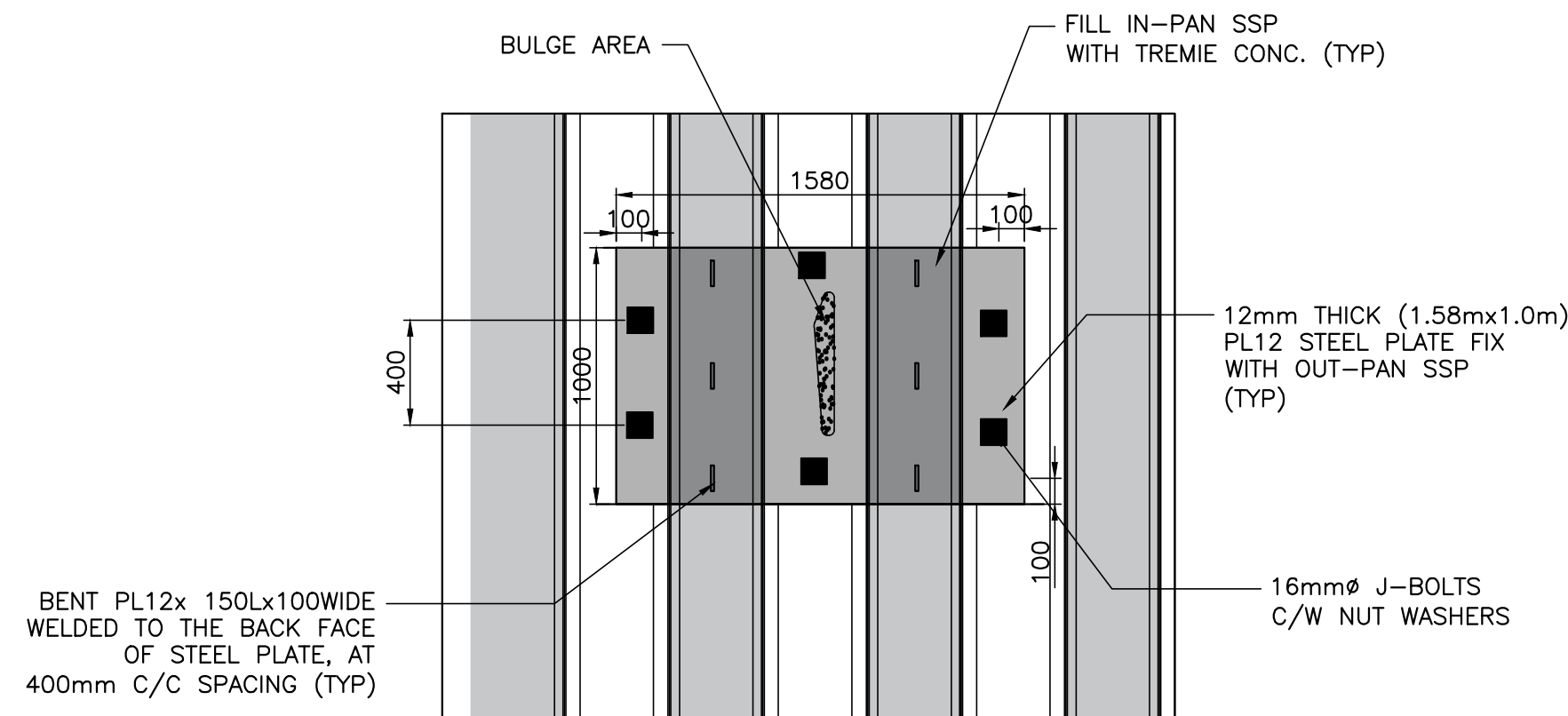
TYPICAL BOTTOM SUPPORT FORMWORK FOR TREMIE CONCRETE

SCALE: 1:5



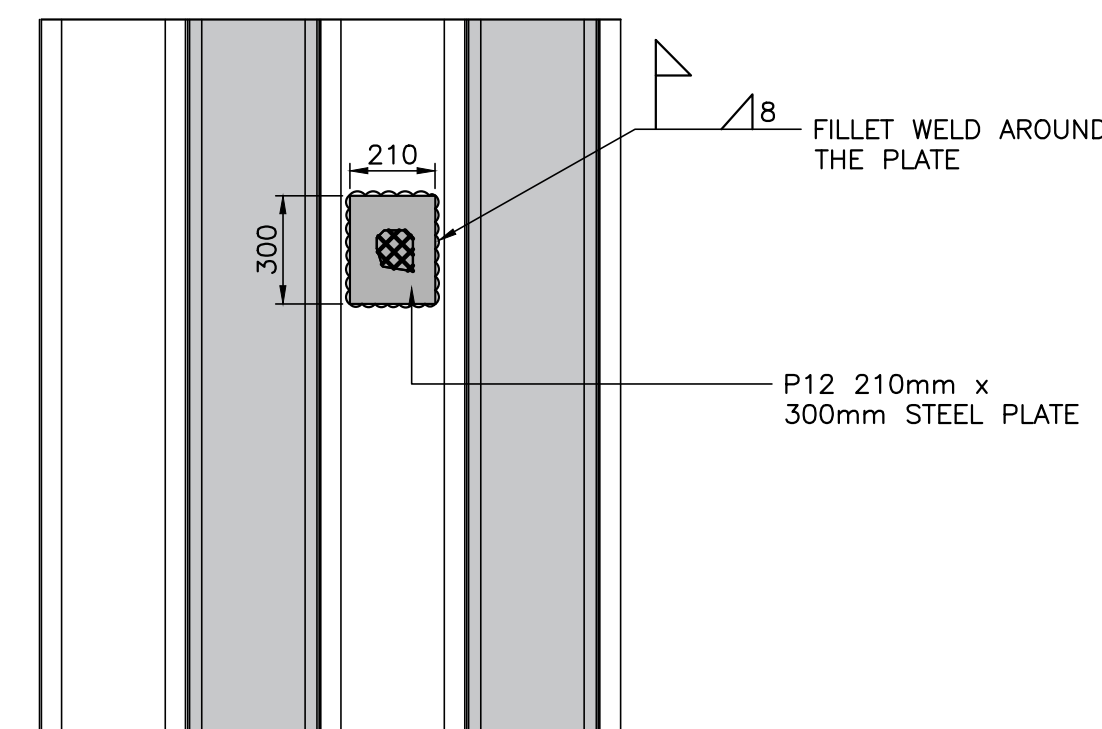
PLAN VIEW OF TYPICAL SSP PATCH REPAIR CONNECTIONS (J-BOLT AND PLUG WELD)

SCALE: 1:5



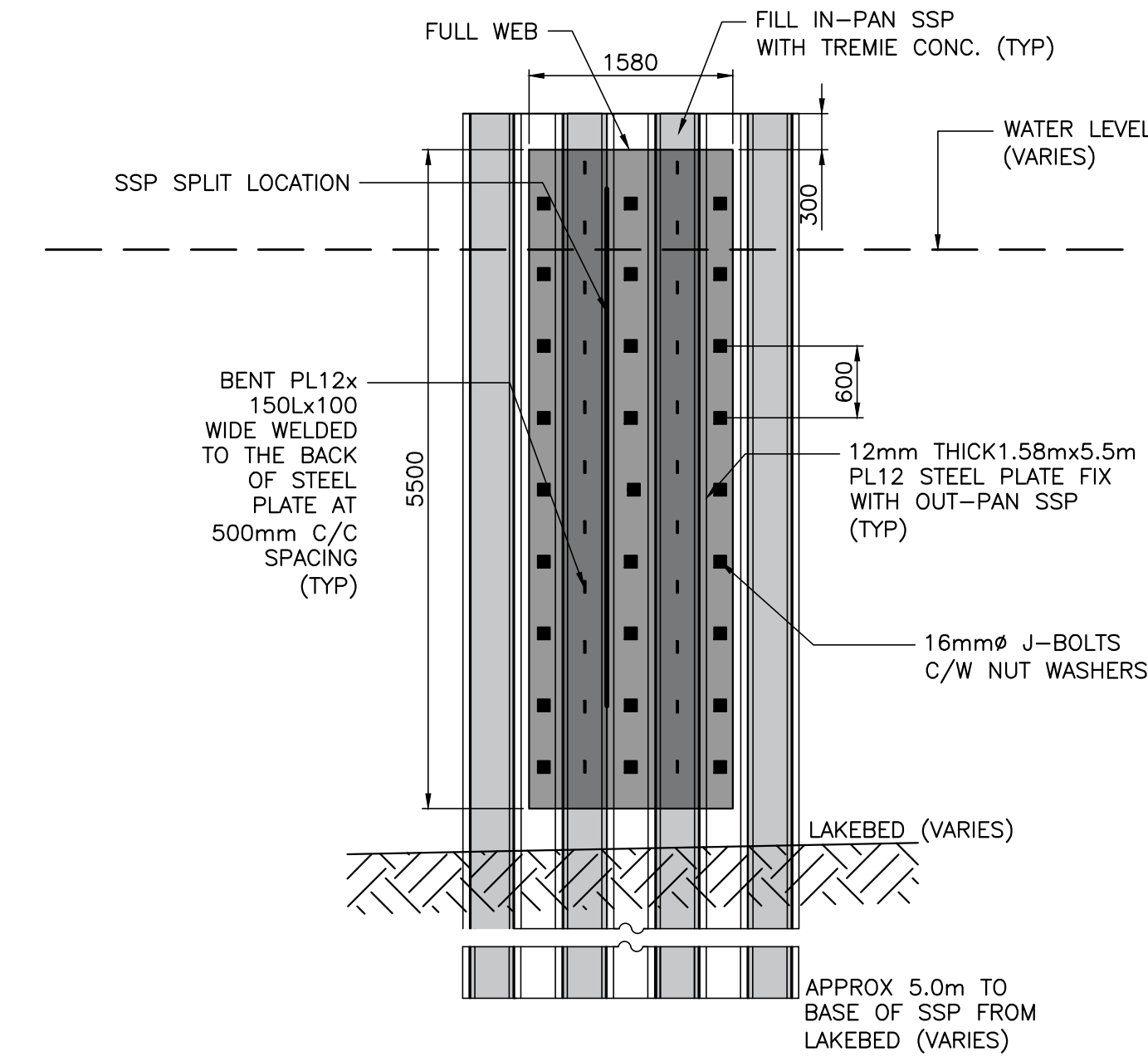
BULGE REPAIR AT STA. 0+032

SCALE: 1:25



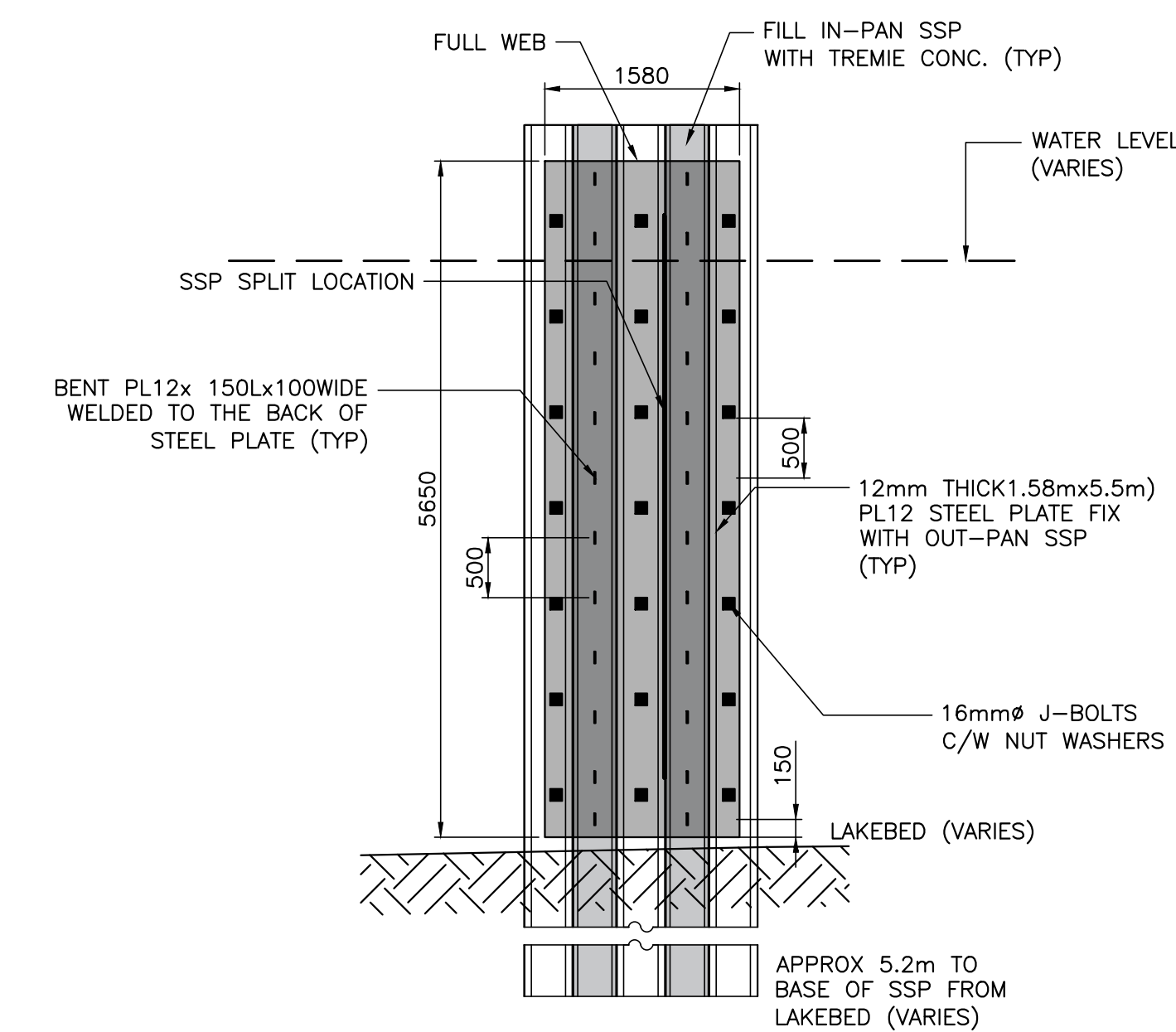
SSP VOID REPAIR AT STA. 0+042.7

SCALE: 1:20



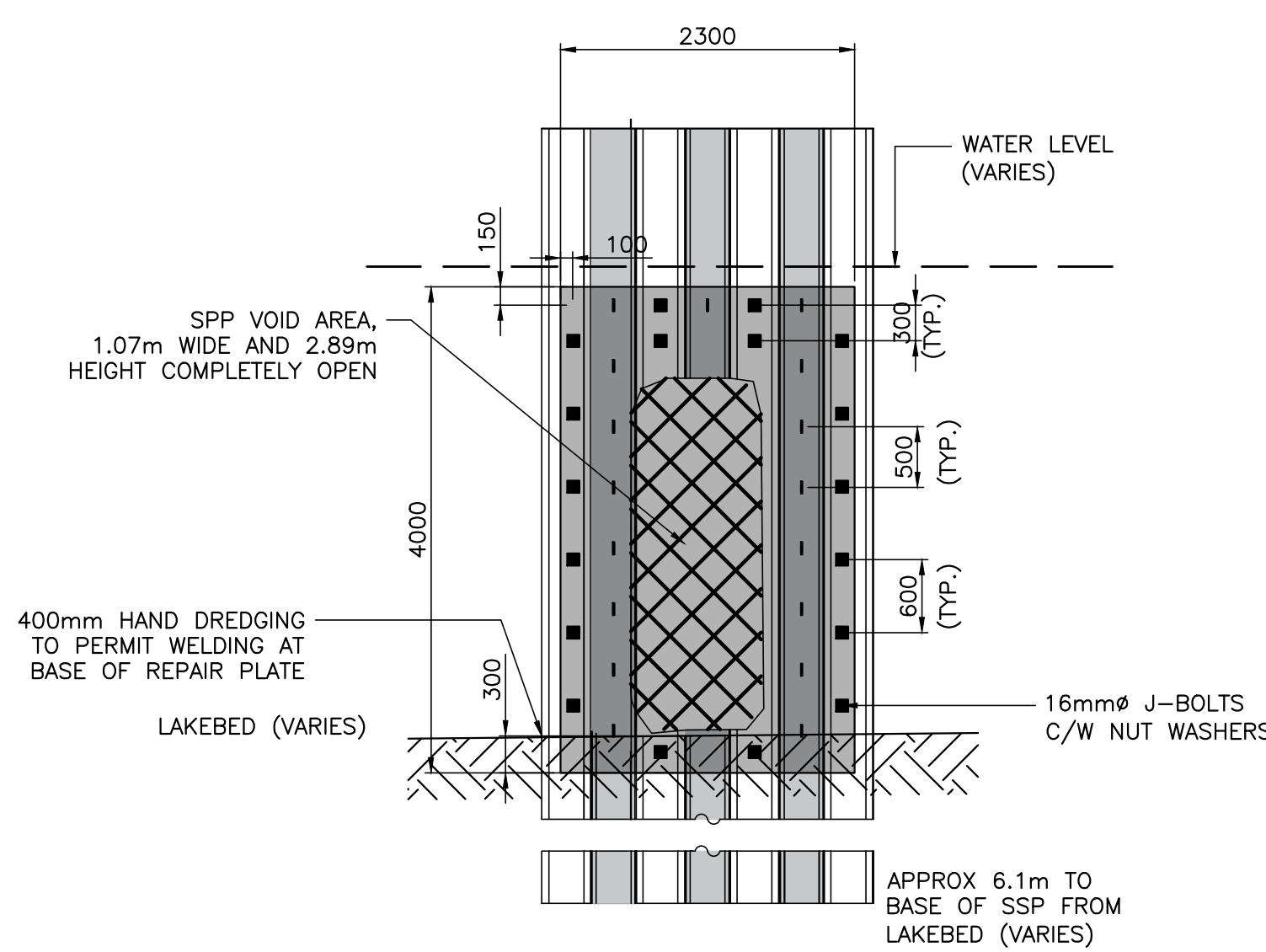
SSP SPLIT REPAIR AT STA. 0+045

SCALE: 1:50



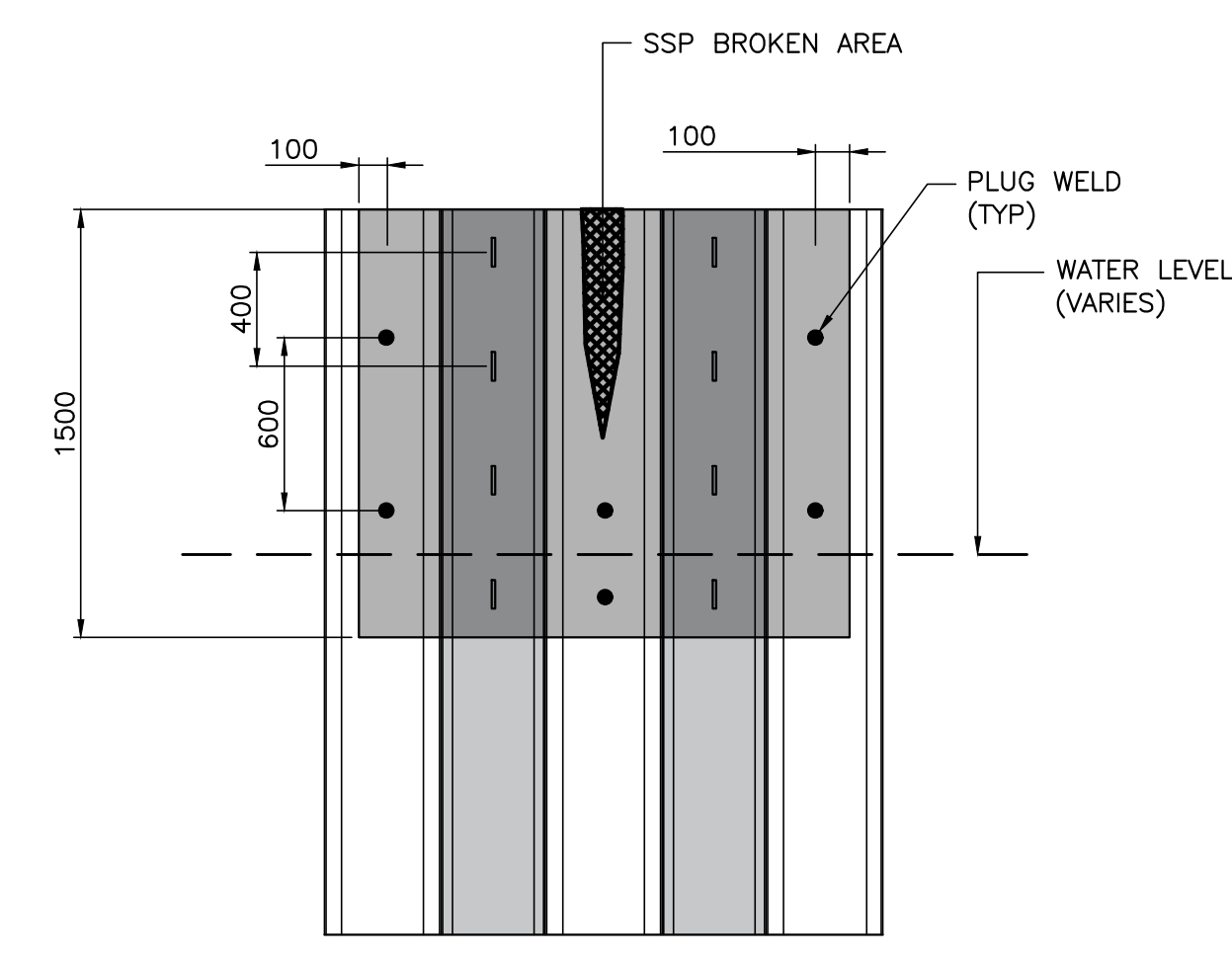
SSP SPLIT REPAIR AT STA. 0+049

SCALE: 1:50



SSP VOID REPAIR AT STA. 0+075

SCALE: 1:50



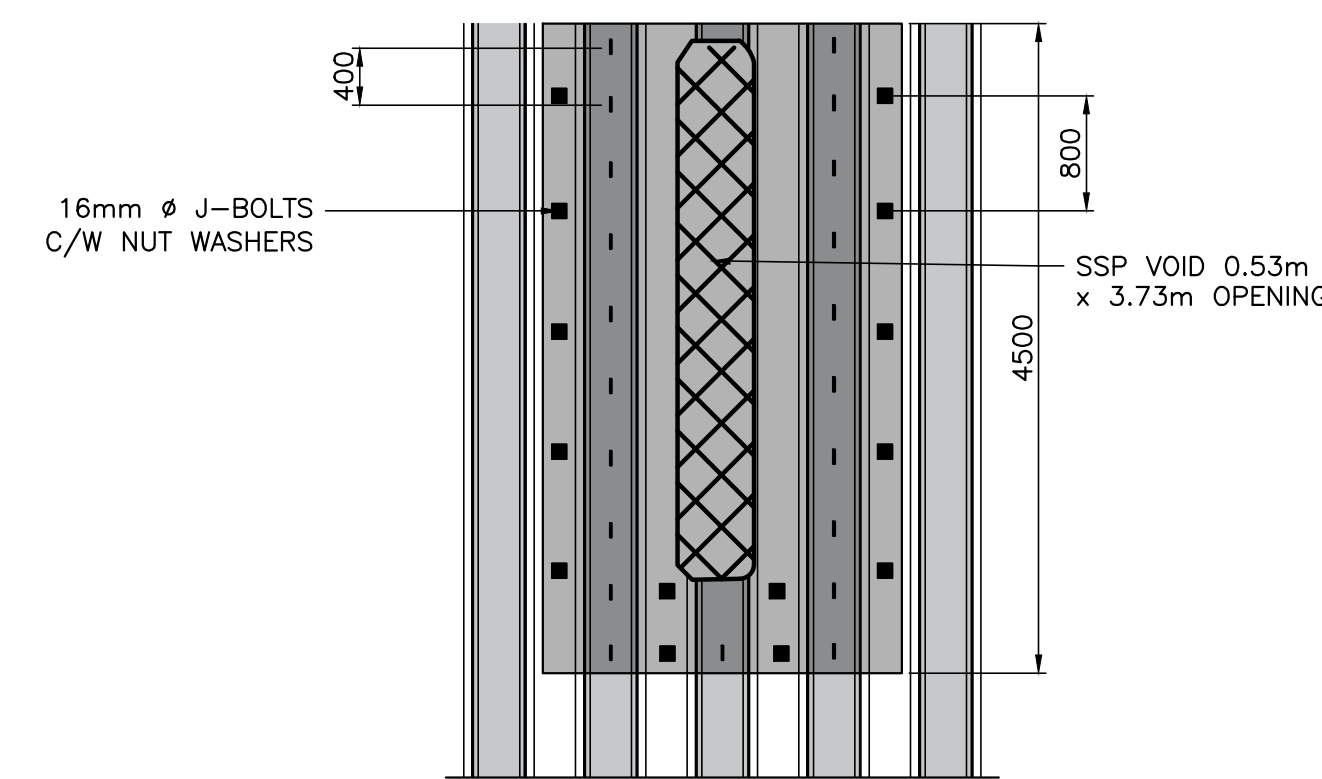
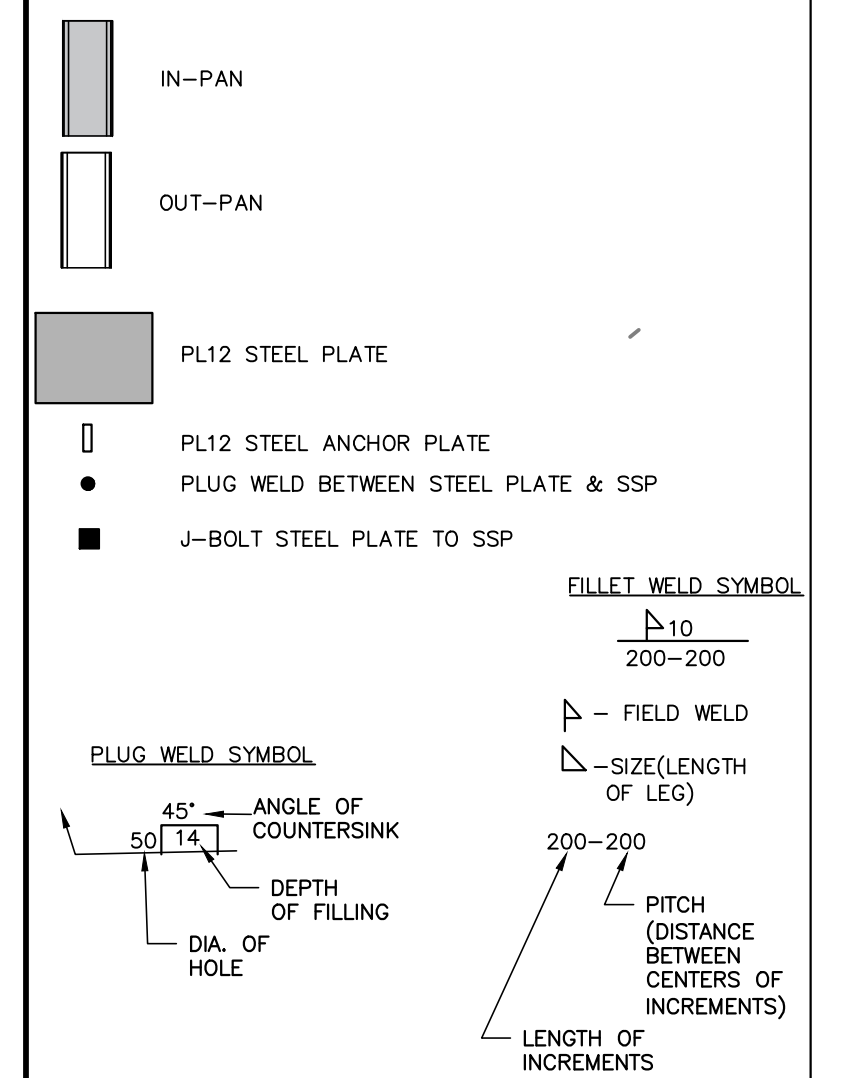
SSP BROKEN AREA REPAIR AT STA. 0+083

SCALE: 1:25

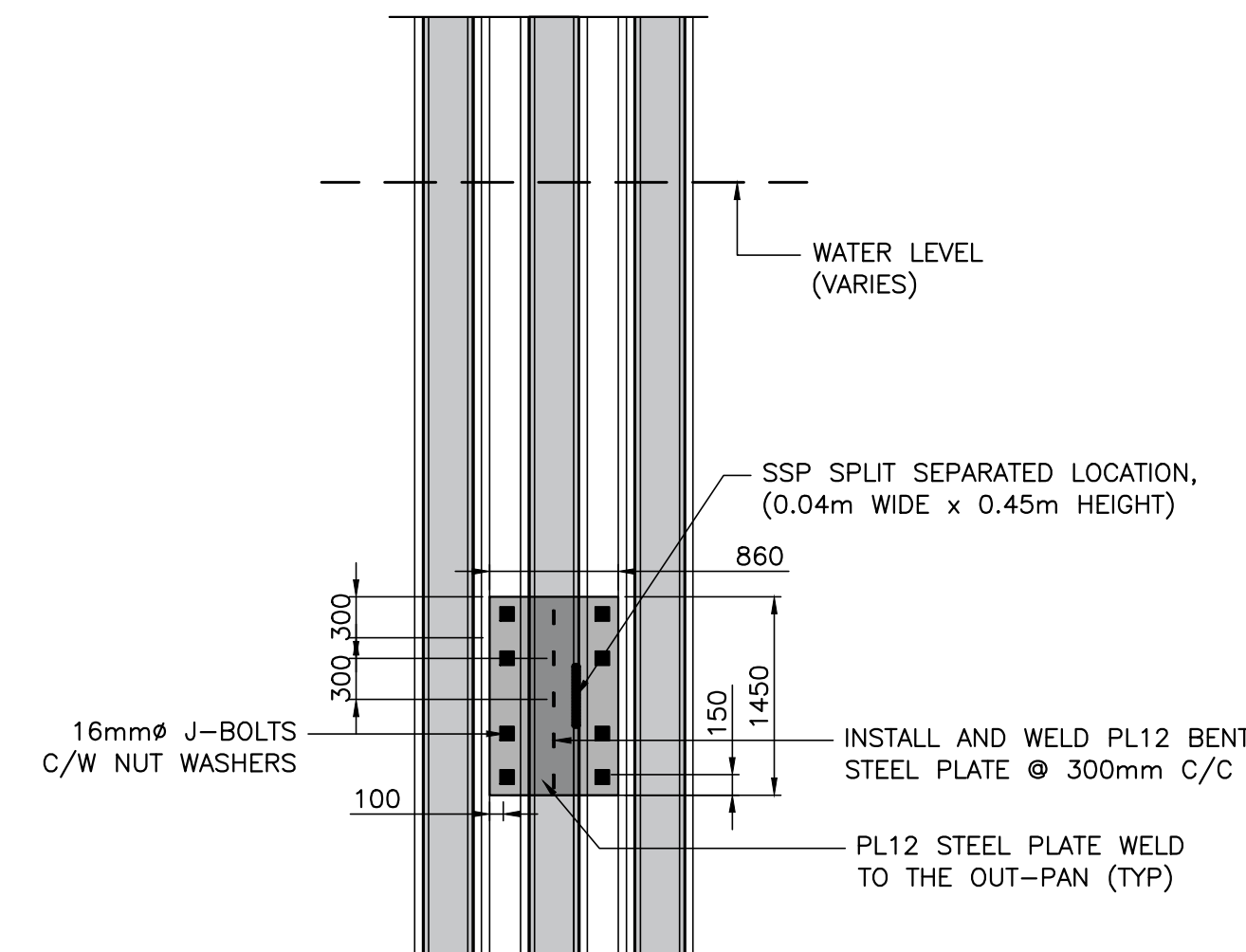




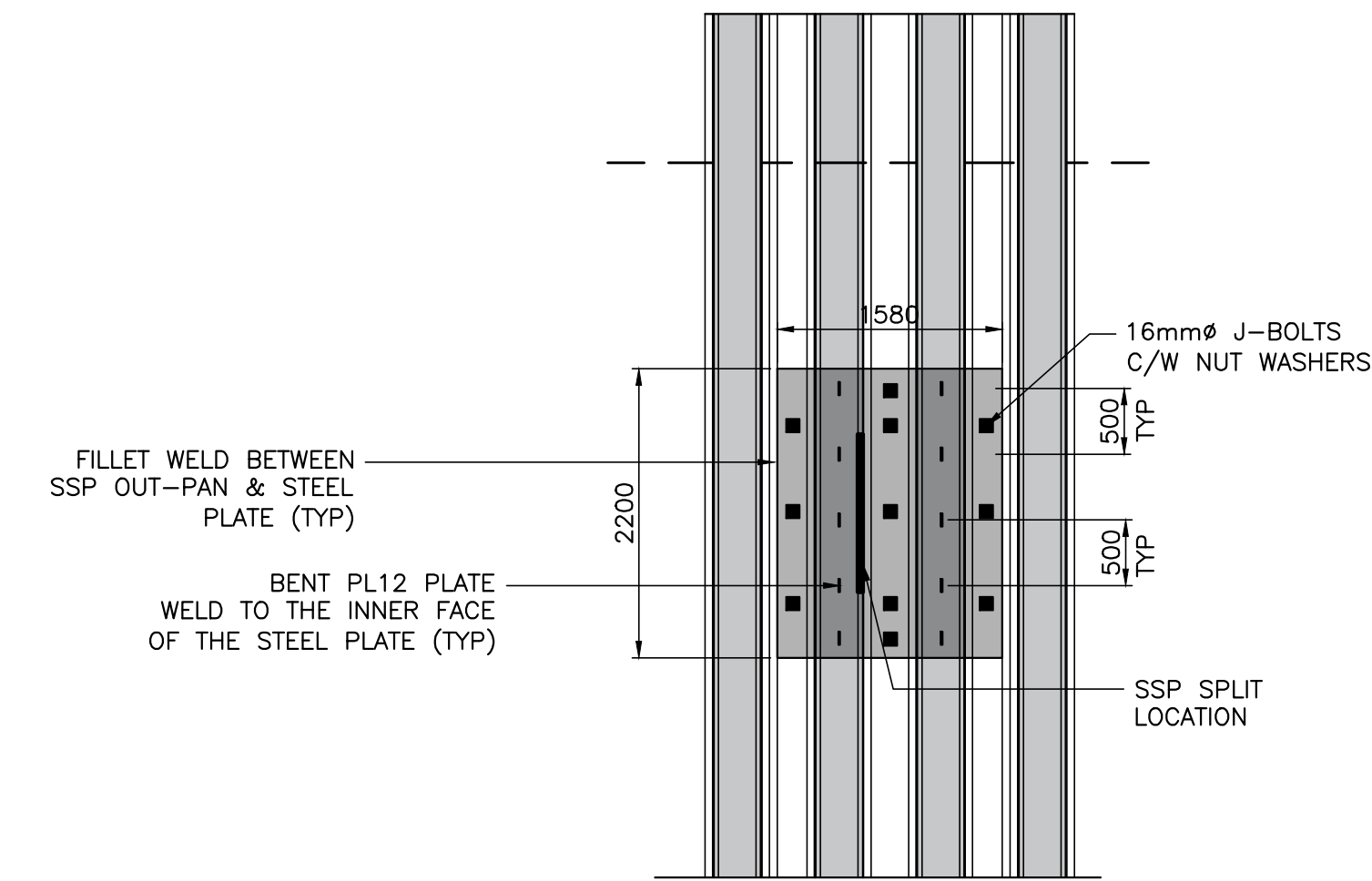
LEGEND



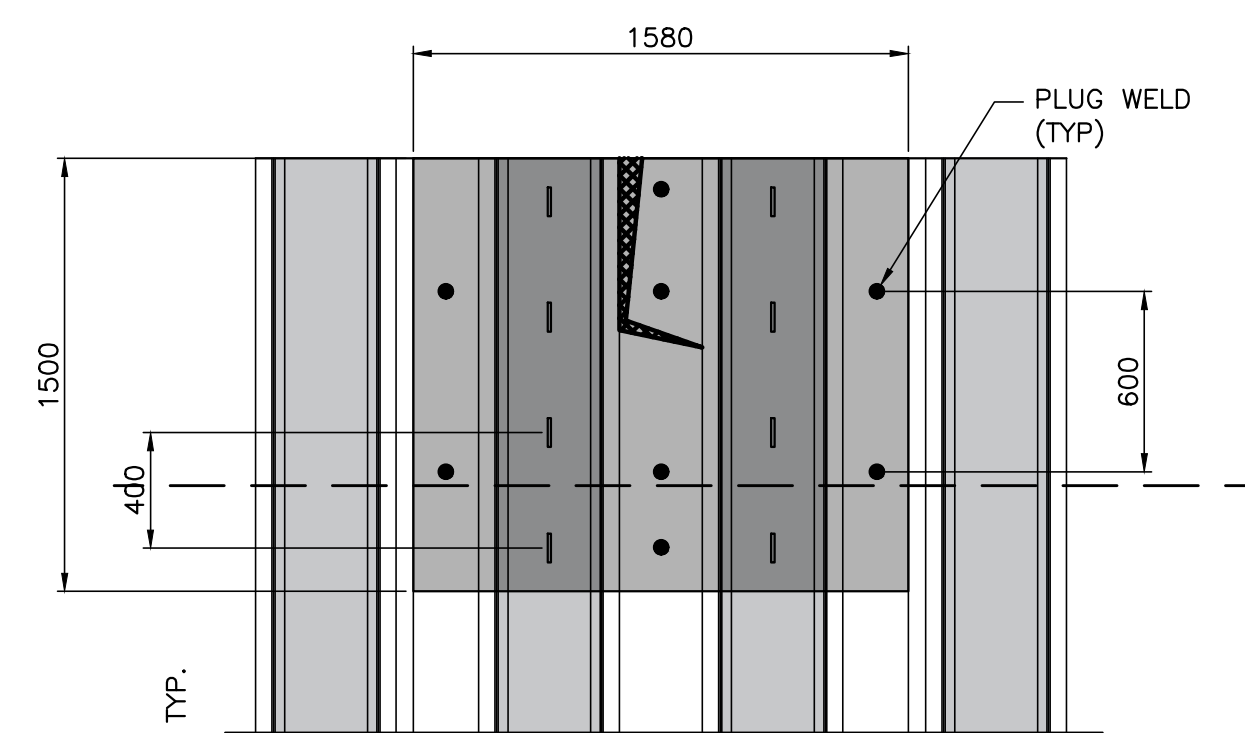
SSP VOID REPAIR AT STA. 0+105
 SCALE: 1:50



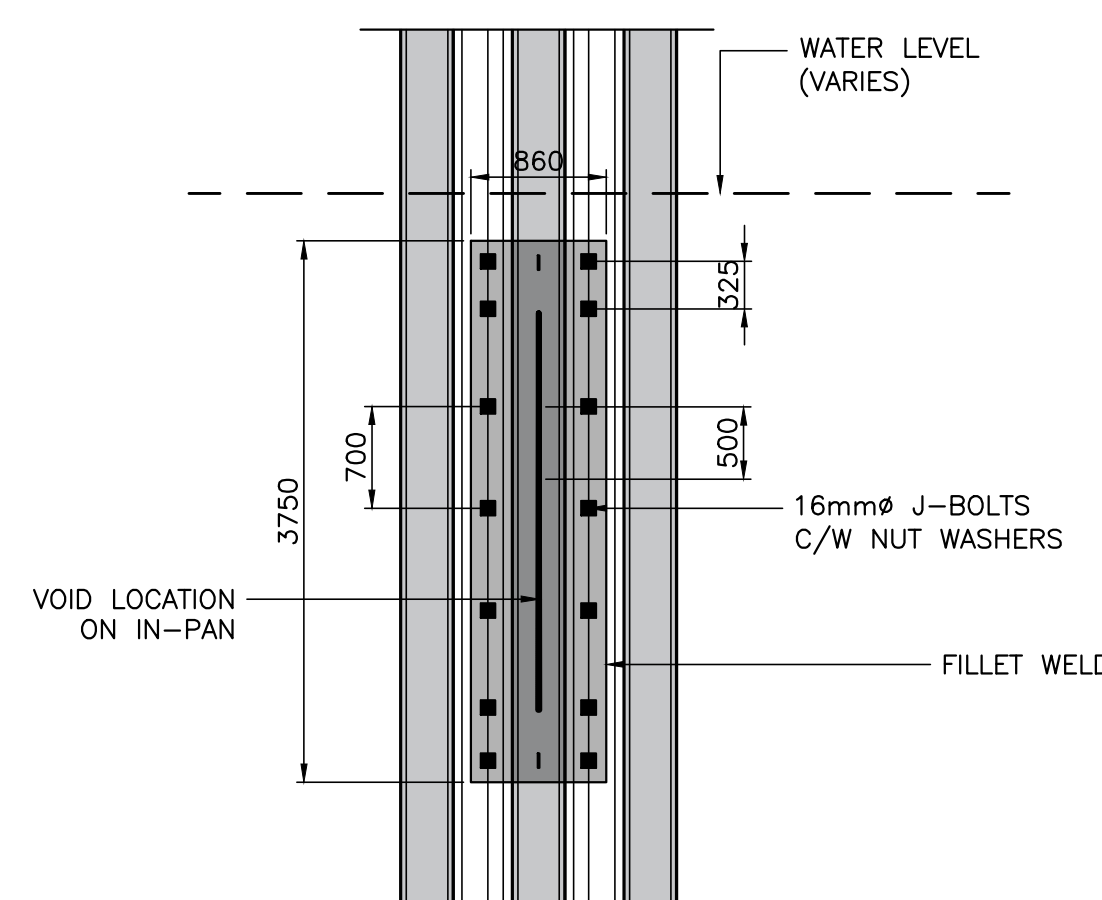
SSP SPLIT REPAIR AT STA. 0+140
 SCALE: 1:50



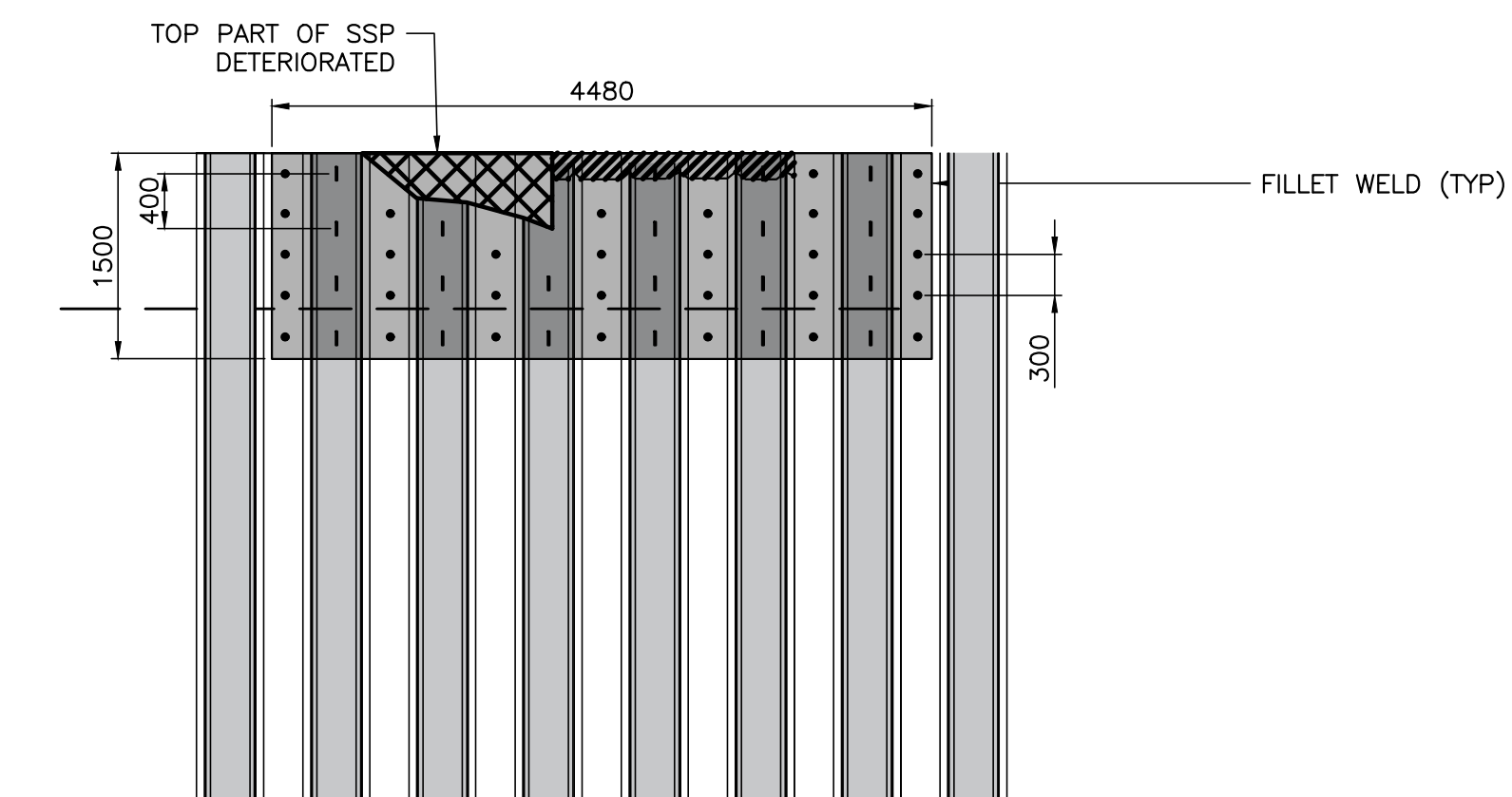
SSP SPLIT REPAIR AT STA. 0+157
 SCALE: 1:50



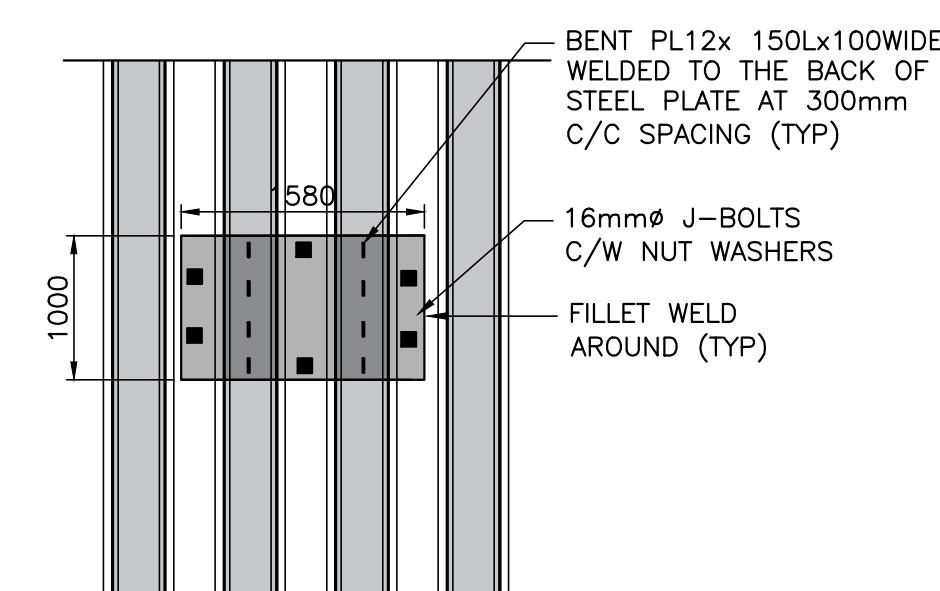
SSP BROKEN REPAIR AT STA. 0+200
 SCALE: 1:25



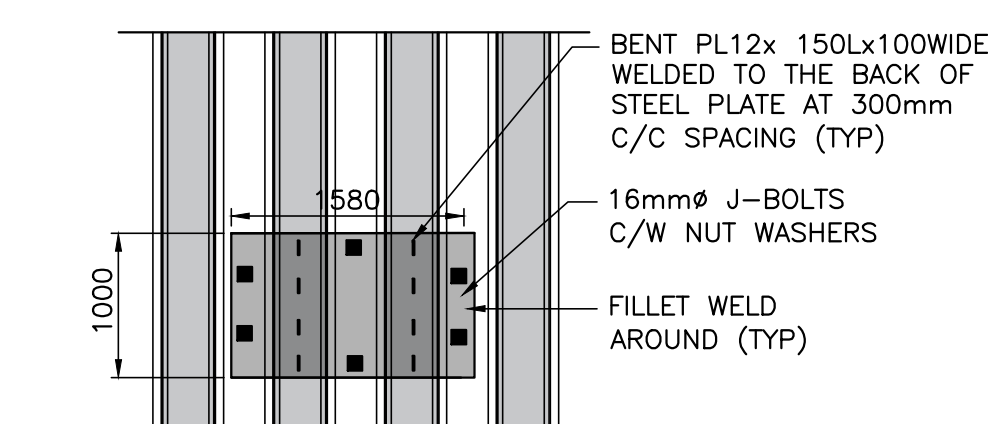
SSP VOID REPAIR AT STA. 0+245
 SCALE: 1:50



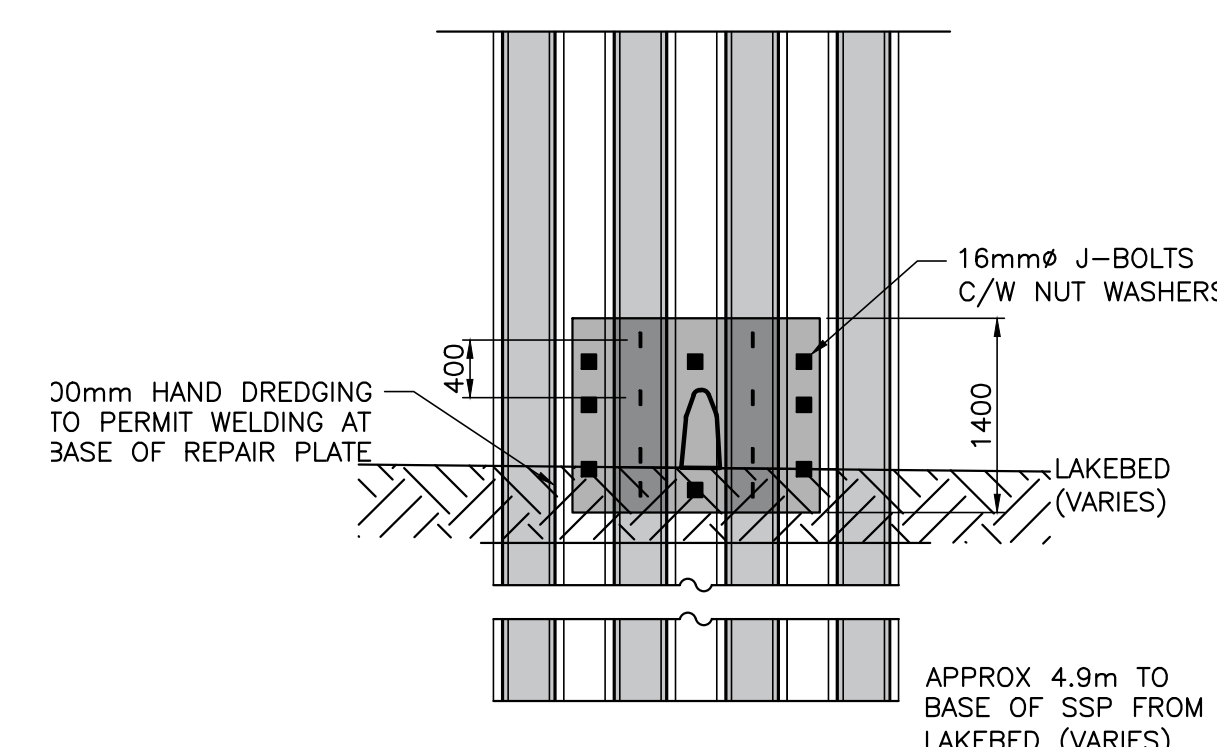
SSP BROKEN SHEET REPAIR AT STA. 0+248.5 TO 0+253.5
 SCALE: 1:50



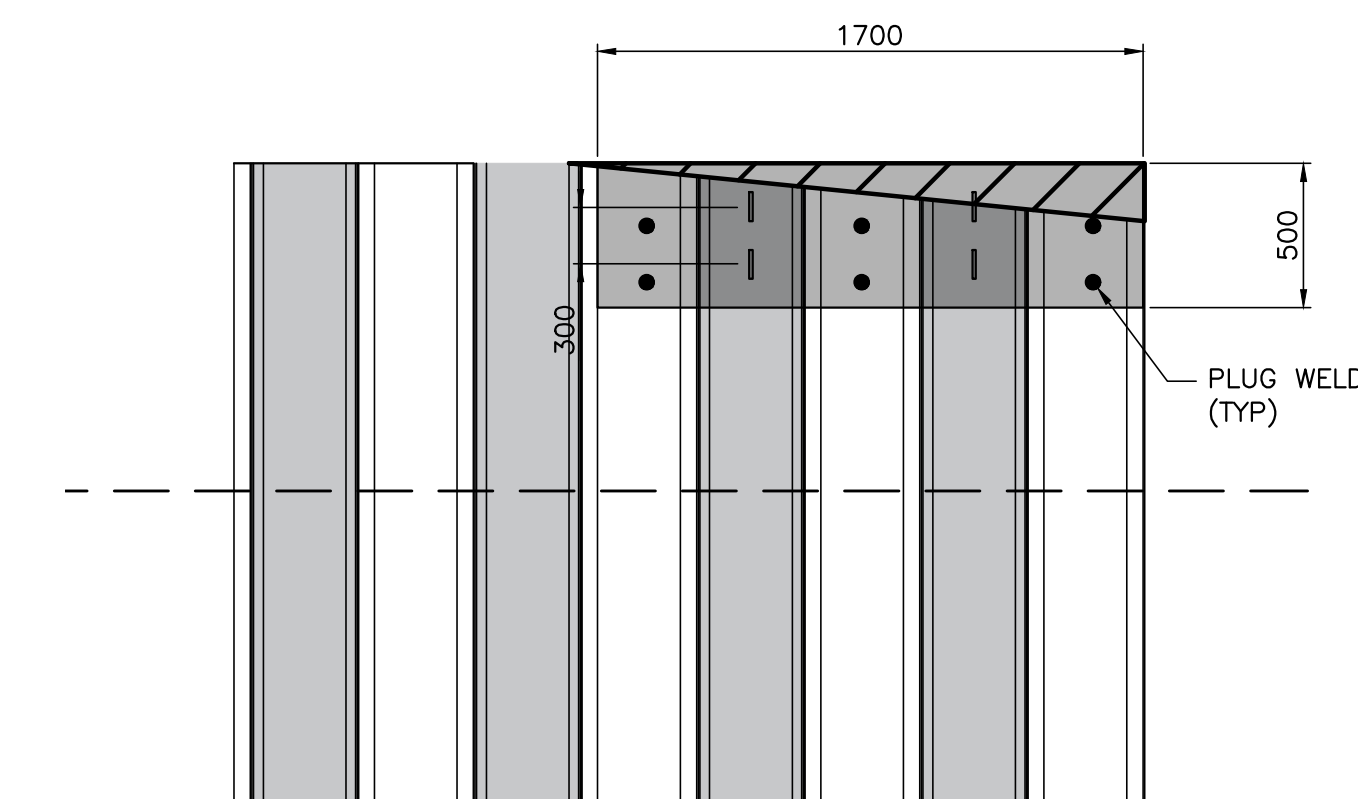
EXIST. STEEL PATCH REPAIR AT STA. 0+282
 SCALE: 1:50



EXIST. STEEL PATCH REPAIR AT STA. 0+301
 SCALE: 1:50



SSP DEPRESSED AREA REPAIR AT STA. 0+315
 SCALE: 1:50



EXIST. SSP CORNER CUT REPAIR AT STA. 0+322.8 TO 0+325.36
 SCALE: 1:25



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| REVISIONS: | DATE: | |
|------------|--------------------|------------|
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

SCALE: AS NOTED CLASS:

PROJECT: WEST PIER REHABILITATION

DESCRIPTION: SSP PATCH REPAIR DETAILS STA. 0+105 TO 0+326.6

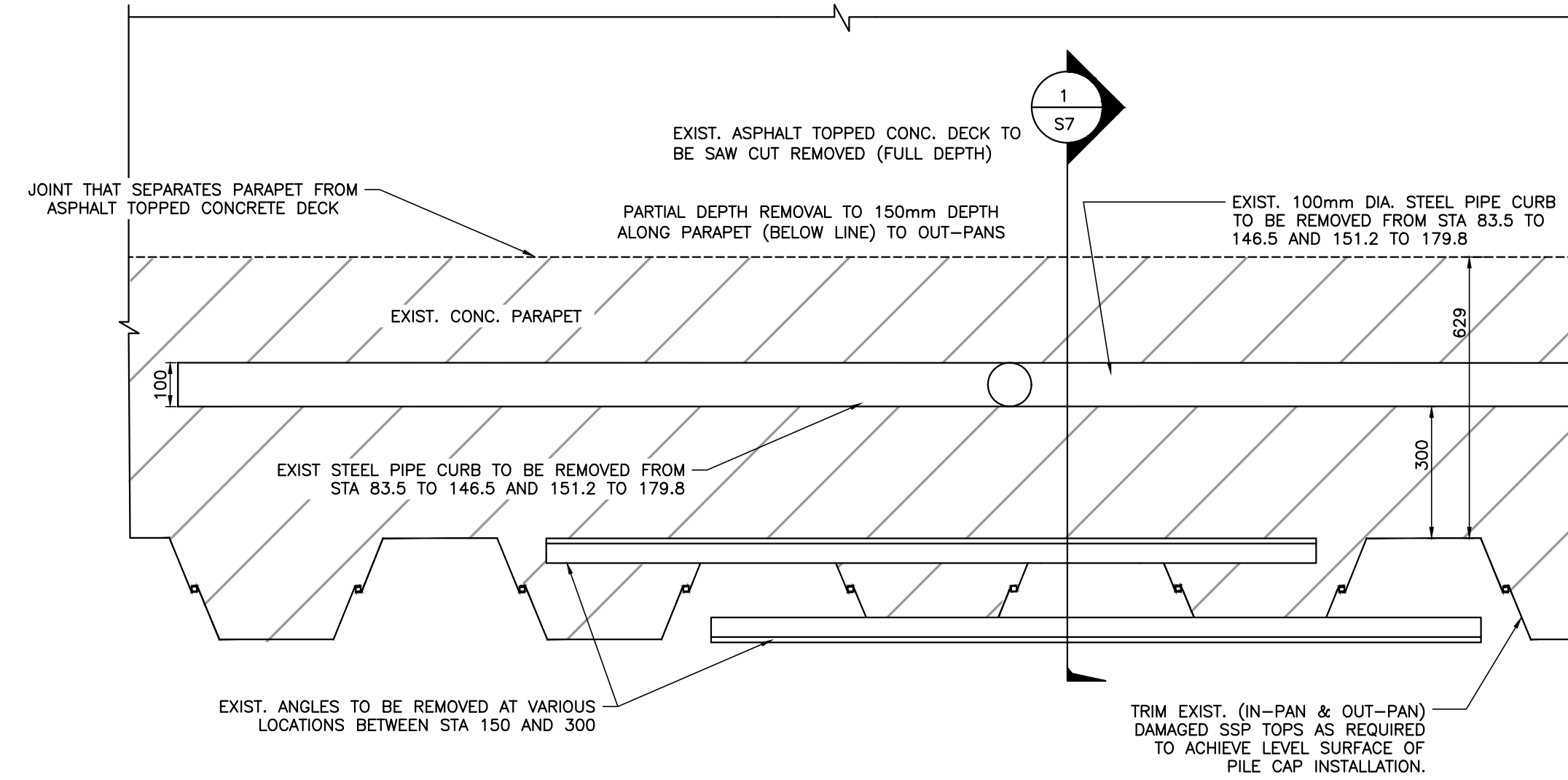
DRAWN: K.P. APPROVED: R.I.M.

DATE: MARCH 2017 DATE:

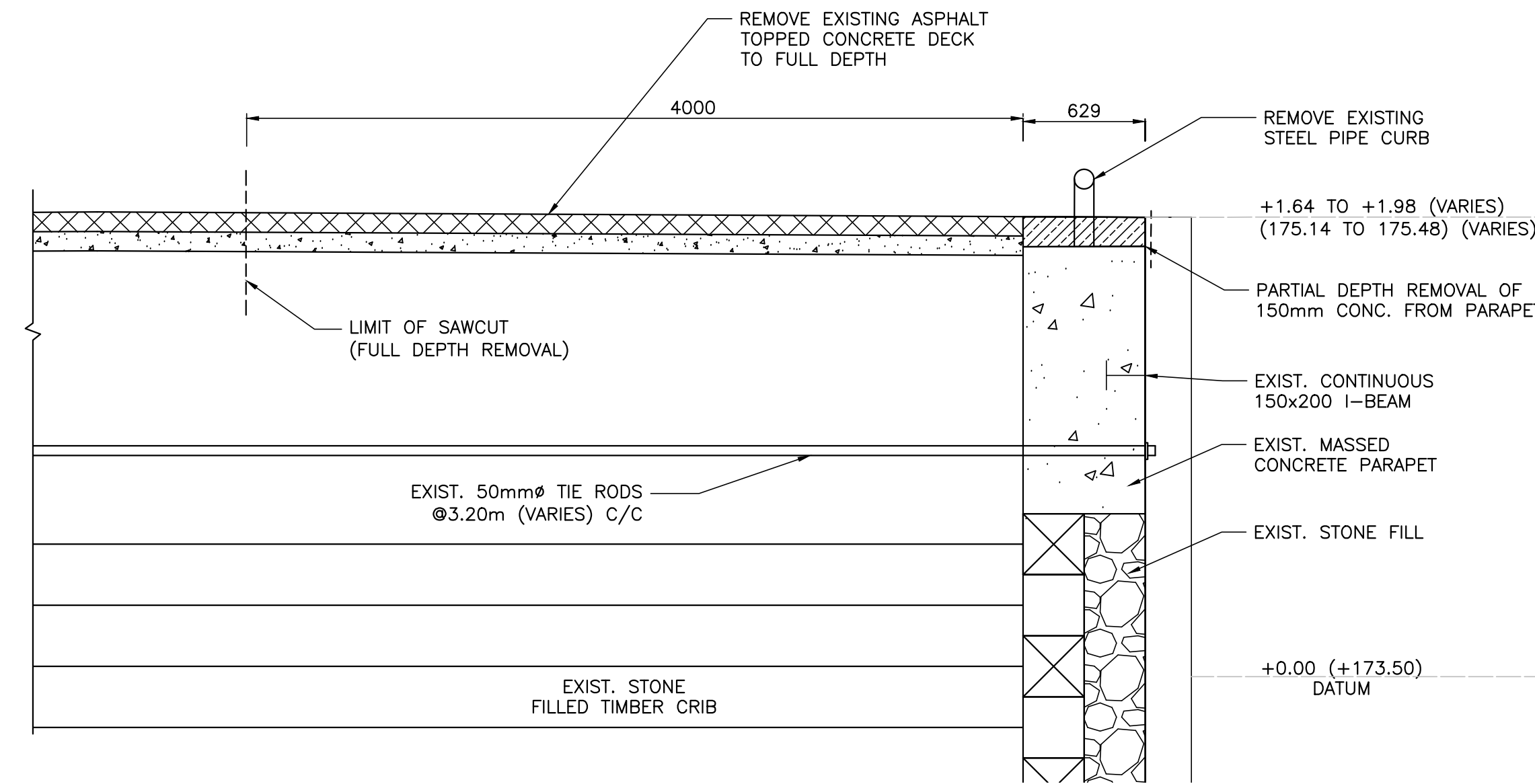
LOCATION: RONDEAU (ERIEAU) HARBOUR ONTARIO

DRAWING NO.: 6 LOCATOR CODE: 4797





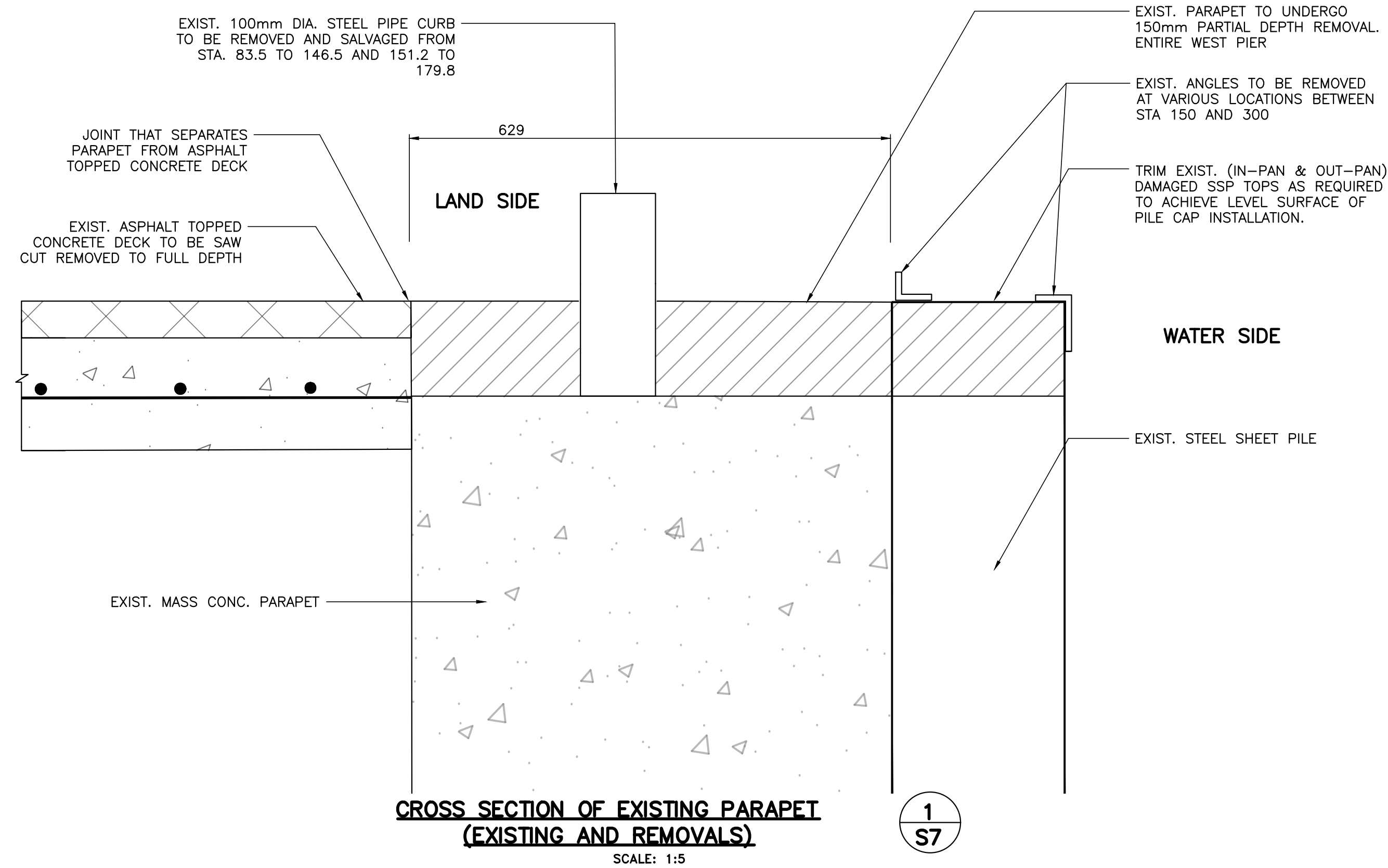
TYPICAL PLAN VIEW PARAPET AT STA. 0+080 TO STA. 0+326 (EXISTING AND REMOVALS)
 SCALE: 1:10



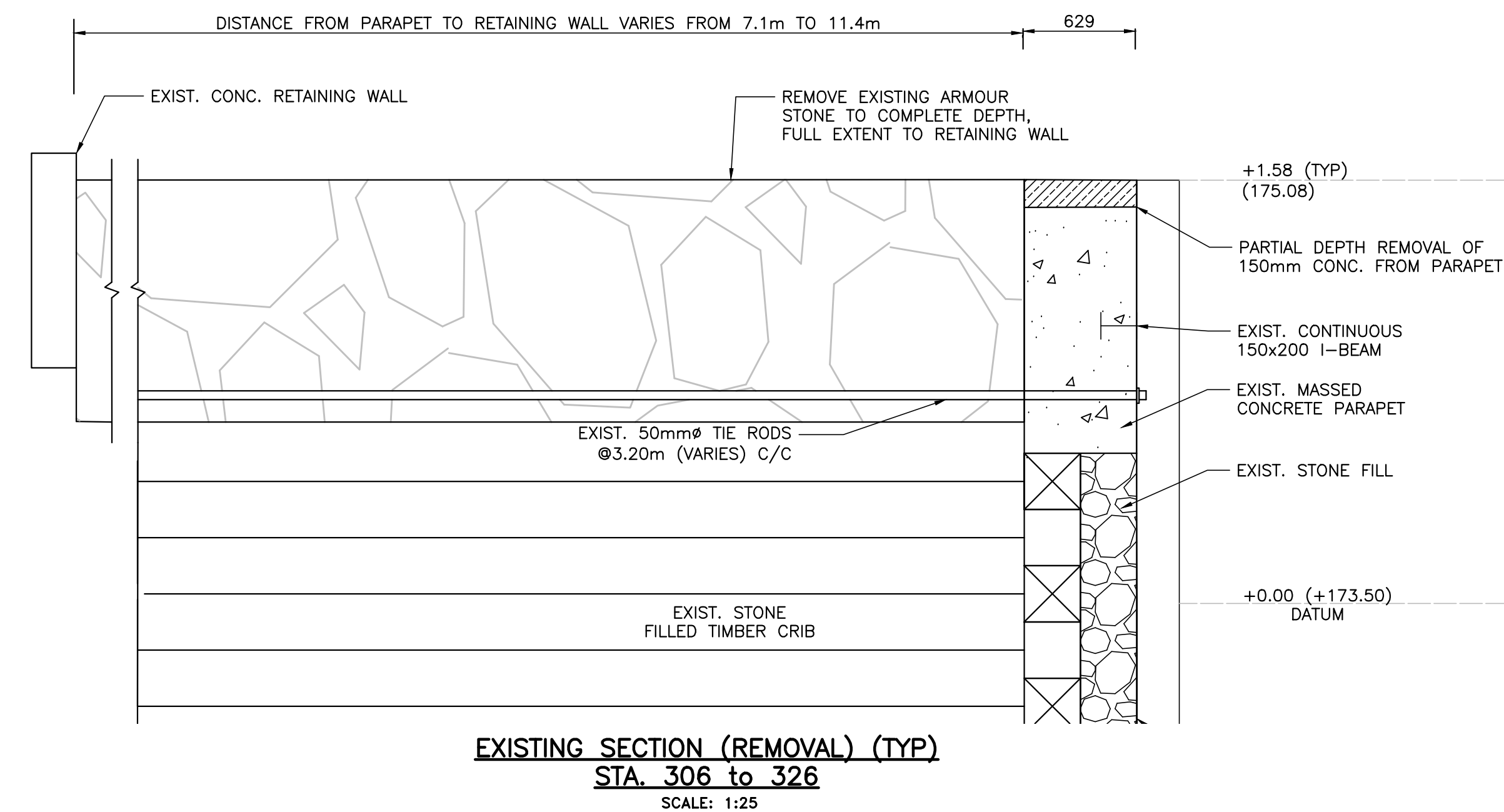
EXISTING SECTION (REMOVAL) (TYP) STA. 83.5 TO 146.5 AND 151.2 TO 306
 SCALE: 1:25

NOTES

- EXISTING PARAPET TO UNDERGO PARTIAL DEPTH REMOVAL TO 150mm DEPTH FROM STA 83.5 TO 325.1
- DECK TO UNDERGO COMPLETE CLEAN FACE SAW CUT REMOVAL FROM PARAPET TO 4m TOWARDS LAND
- ARMOUR STONE TO BE REMOVED TO COMPLETE DEPTH, FULL EXTENT TO RETAINING WALL
- STEEL SHEET PILES TO BE TRIMMED AS NECESSARY TO ACCOMMODATE STEEL CHANNEL PILE CAP AND MAINTAIN EXIST. GRADE



CROSS SECTION OF EXISTING PARAPET (EXISTING AND REMOVALS)
 SCALE: 1:5



EXISTING SECTION (REMOVAL) (TYP) STA. 306 TO 326
 SCALE: 1:25



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| REVISIONS: | DATE: | |
|------------|--------------------|------------|
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

SCALE: AS NOTED CLASS:

PROJECT:
WEST PIER REHABILITATION

DESCRIPTION:
EXISTING DECK AND PARAPET

DRAWN: S.D. APPROVED: R.I.M.

DATE: MAR 2017 DATE:

LOCATION:
RONDEAU (ERIEAU) HARBOUR ONTARIO

DRAWING NO.: 7 LOCATOR CODE: 4797



**SMALL CRAFT HARBOURS
CENTRAL AND ARCTIC REGION**



NOTES

- DECK TO UNDERGO COMPLETE CLEAN FACE SAW CUT REMOVAL FROM PARAPET TO 4m TOWARDS LAND
- ARMOUR STONE TO BE REMOVED TO COMPLETE DEPTH, FULL EXTENT TO RETAINING WALL
- STEEL CHANNEL PILE CAP TO BE INSTALLED FROM STA 83.5 TO 325.1
- STEEL SHIMS TO BE PROVIDED AT ALTERNATING LAND-SIDE IN-PANS TO ENSURE THE STEEL CHANNEL LAYS FLAT
- CEMENT TYPE CSA A23.01-09, TYPE GU
- MINIMUM COMPRESSIVE STRENGTH: 35MPa AT 28 DAYS
- EXPOSURE CLASS: C-1 TO CSA A23.1/A23.2
- AGGREGATE SIZE 20mm MAXIMUM SIZE TO CSA A23.1/A23.2
- REINFORCING BARS AND DOWELS TO GRADE 400W
- FINAL STEEL PILE CAP SURFACE TO BE AT TYPICAL ELEVATION AS SHOWN +/- 25mm AND MAINTAIN 1% SLOPE TOWARDS LAKE (MATCH EXISTING GRADE)
- CHANNEL TO BE PAINTED YELLOW



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| REVISIONS: | DATE: | |
|------------|--------------------|------------|
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

| | |
|-----------------|--------|
| SCALE: | CLASS: |
| AS NOTED | |

PROJECT:
WEST PIER REHABILITATION

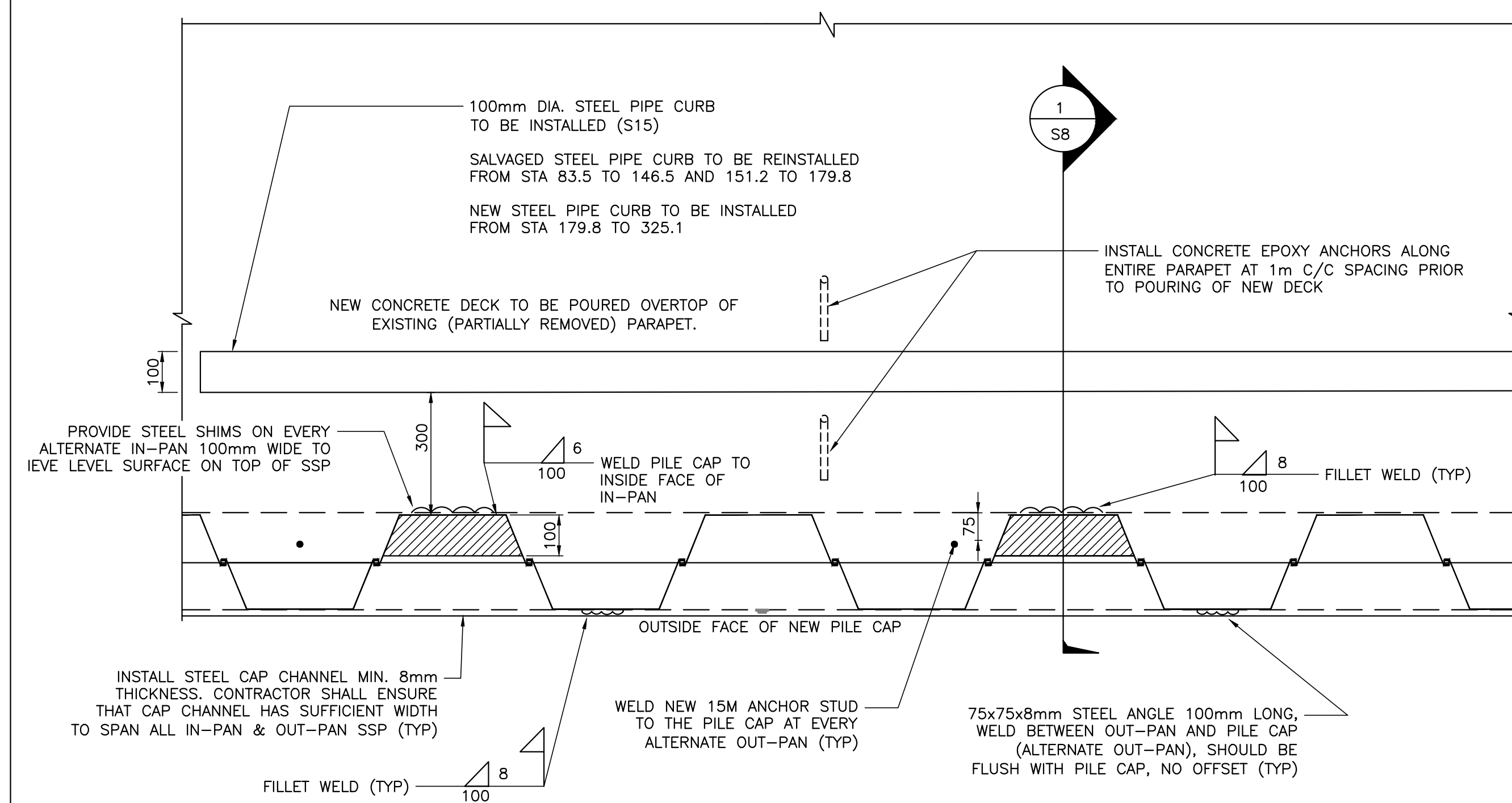
DESCRIPTION:
**PROPOSED DECK AND PARAPET
STA. 0+000 TO 0+332.97**

| | |
|-------------|---------------|
| DRAWN: | APPROVED: |
| S.D. | R.I.M. |

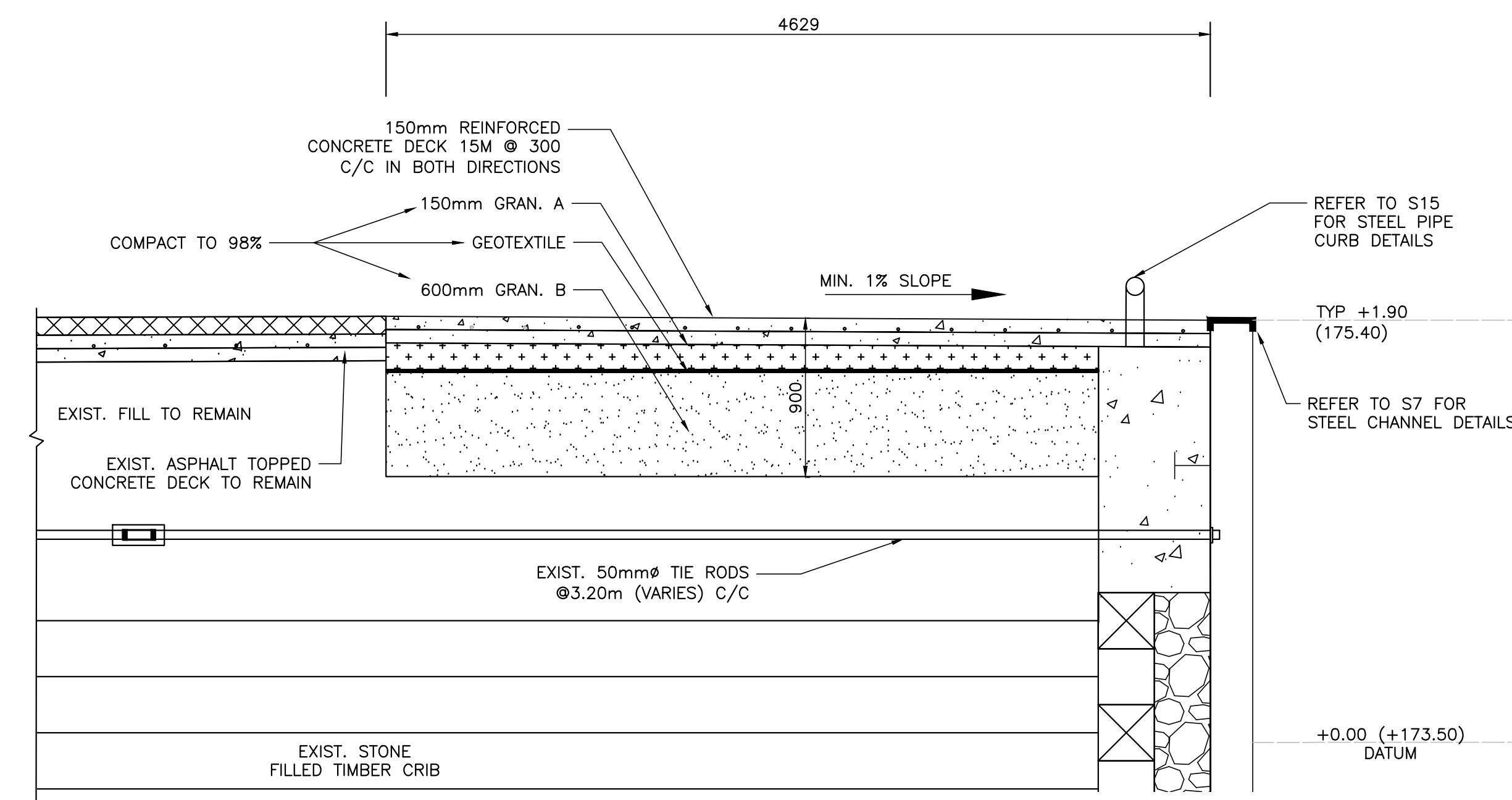
| | |
|-----------------|-------|
| DATE: | DATE: |
| MAR 2017 | |

LOCATION:
**RONDEAU (ERIEAU)
HARBOUR
ONTARIO**

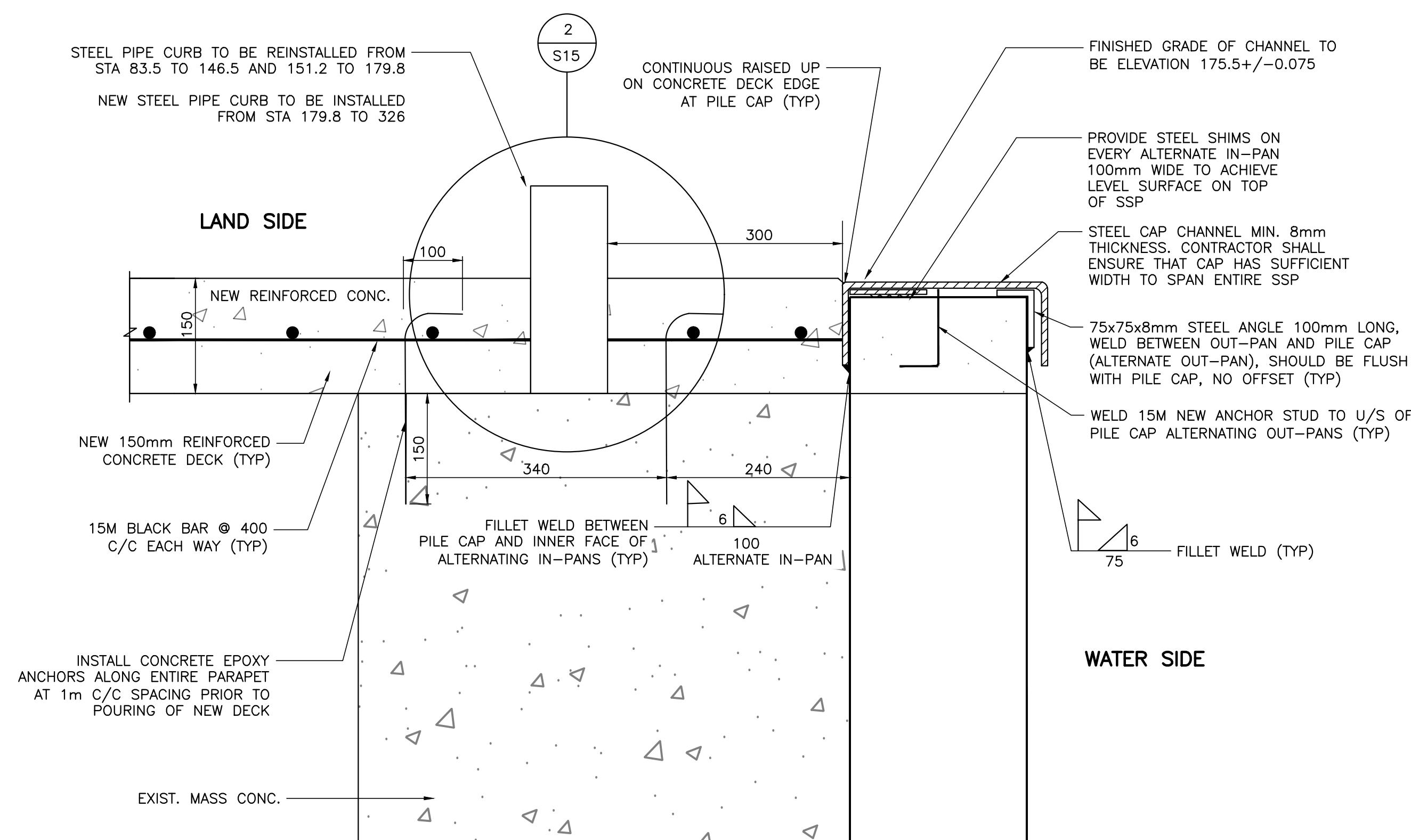
| | |
|--------------|---------------|
| DRAWING NO.: | LOCATOR CODE: |
| 8 | 4797 |



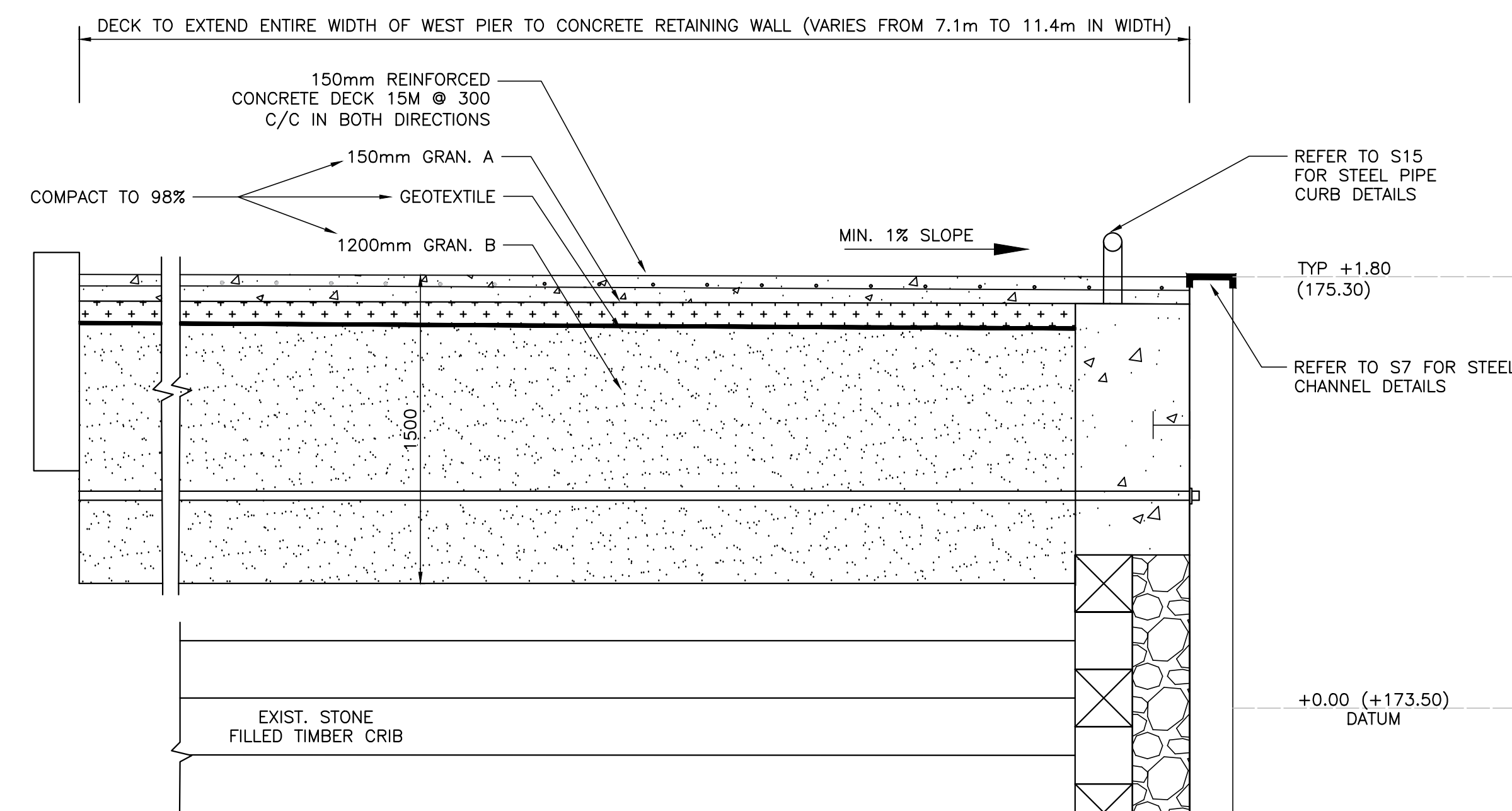
TYPICAL PLAN VIEW PARAPET AT STA. 0+080 TO STA. 0+303 (PROPOSED)
SCALE: 1:10



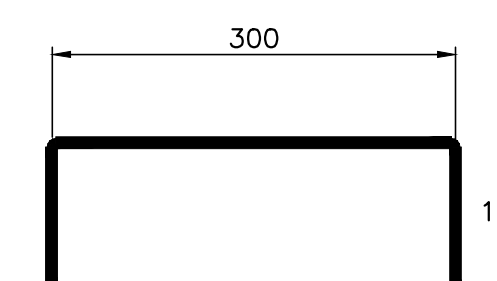
**PROPOSED CROSS SECTION (TYP)
STA. 83.5 TO 146.5 AND 151.2 TO 306**
SCALE: 1:25



PROPOSED CROSS SECTION OF PARAPET
SCALE: 1:5



**PROPOSED CROSS SECTION (TYP)
STA. 306 TO 326**
SCALE: 1:25



STEEL CAP CHANNEL MIN. 8mm THICKNESS. CONTRACTOR SHALL ENSURE THAT CAP HAS SUFFICIENT WIDTH TO SPAN ALL IN-PAN & OUT-PAN SSP (TYP)
STEEL CAP CHANNEL TO HAVE WIDTH OF 300mm FROM STA. 083.5 TO 326.5 AND FROM STA. 325.1 TO 345.4 (AROUND NEW SECTION AT NORTH END).

STEEL CAP CHANNEL DETAILS
SCALE: 1:5





NOTES

- 1: SPACING: TOE PINS TO BE DRIVEN @ 2.88m C/C SPACING. FIRST PIN AT STA 0.58, FINAL PIN AT STA 46.66.
- 2: LOCATION: CIRCULAR HSS 324 PILES TO BE INSTALLED AT VARYING DISTANCES AS MEASURED TO THE EAST OF THE EDGE OF THE EXISTING STEEL CHANNEL/TOP OF SHEET PILE. OFFSET FROM EDGE OF CHANNEL TO RANGE FROM 2.53m TO 1.55m. SSP DEFLECTION TO BE MEASURED BY CONTRACTOR AND TOE PIN OFFSET DISTANCE TO BE CONFIRMED BY DEPARTMENTAL REPRESENTATIVE PRIOR TO IMPLEMENTATION.
- 3: DEPTH: CIRCULAR HSS 324 TO BE DRIVEN TO LAKEBED AND CUT OFF WITH A 250mm TOLERANCE OF LAKEBED.
- 4: SIZE: CIRCULAR HSS 324 PILES TO HAVE THICKNESS OF 11.4mm, LENGTH OF 8.7m, AND OUTER DIAMETER OF 324mm.



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| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

| | |
|-----------------|--------|
| SCALE: | CLASS: |
| AS NOTED | |

PROJECT:

WEST PIER REHABILITATION

DESCRIPTION:

**TOE PINS
STA. 0+000 TO 0+030**

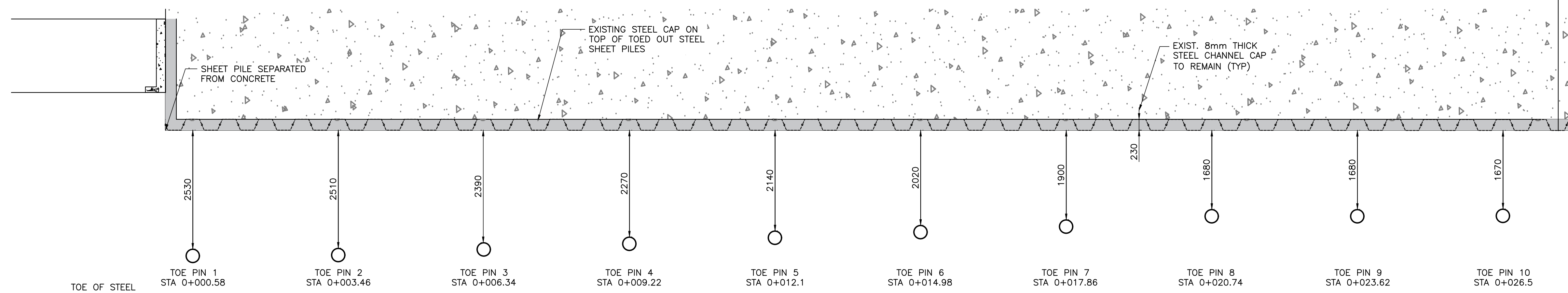
| | |
|-------------|---------------|
| DRAWN: | APPROVED: |
| S.D. | R.I.M. |

| | |
|-----------------|-------|
| DATE: | DATE: |
| MAR 2017 | |

LOCATION:

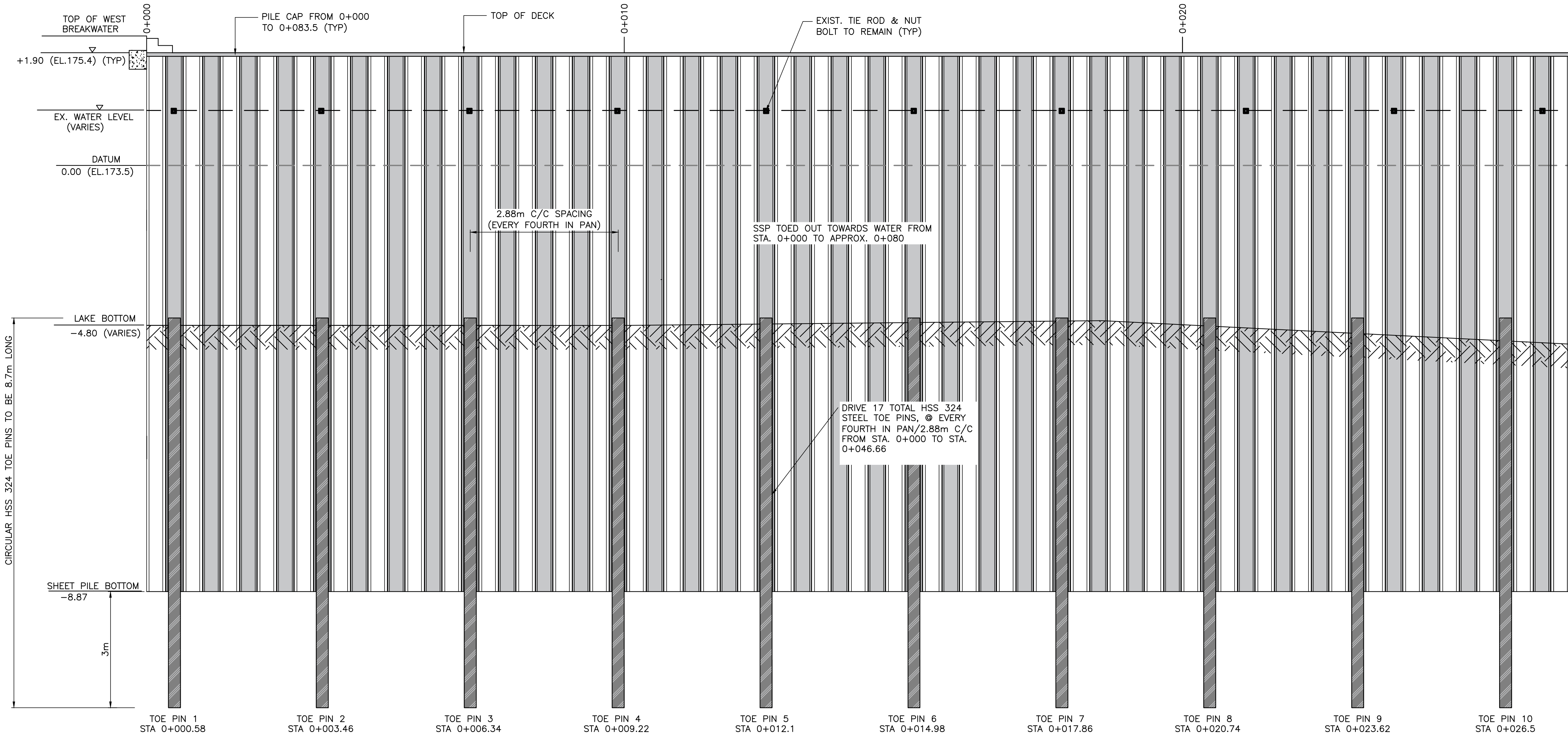
**RONDEAU (ERIEAU) HARBOUR
ONTARIO**

| | |
|--------------|---------------|
| DRAWING NO.: | LOCATOR CODE: |
| 9 | 4797 |



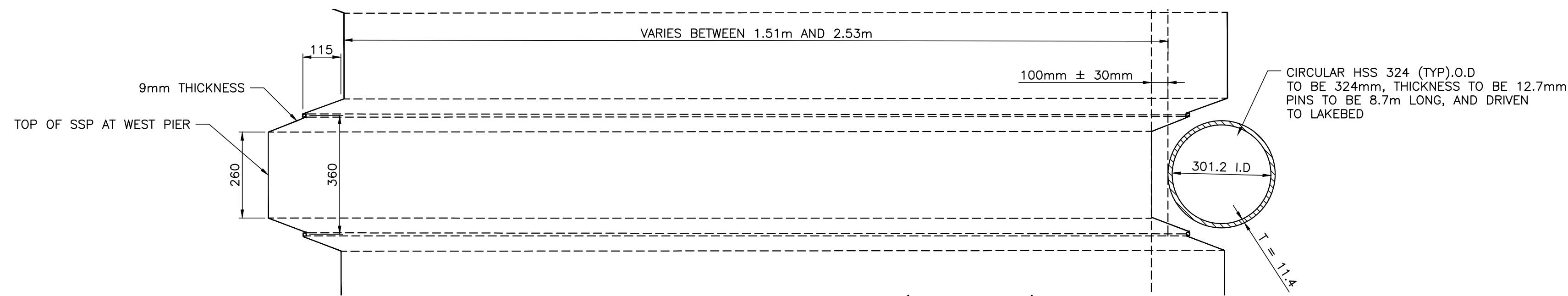
PLAN STA. 0+000 TO 0+030

SCALE: 1:50



ELEVATION, ST. 0+000 TO 0+030

SCALE: 1:50



TOE PIN OFFSET TOLERANCE DETAIL (PLAN VIEW)

SCALE: 1:10





NOTES

- 1: SPACING: TOE PINS TO BE DRIVEN @ 2.88m C/C SPACING. FIRST PIN AT STA 0.58, FINAL PIN AT STA 46.66.
- 2: LOCATION: CIRCULAR HSS 324 PILES TO BE INSTALLED AT VARYING DISTANCES AS MEASURED TO THE EAST OF THE EDGE OF THE EXISTING STEEL CHANNEL/TOP OF SHEET PILE. OFFSET FROM EDGE OF CHANNEL TO RANGE FROM 2.53m TO 1.55m. SSP DEFLECTION TO BE MEASURED BY CONTRACTOR AND TOE PIN OFFSET DISTANCE TO BE CONFIRMED BY DEPARTMENTAL REPRESENTATIVE PRIOR TO IMPLEMENTATION.
- 3: DEPTH: CIRCULAR HSS 324 TO BE DRIVEN TO LAKEBED AND CUT OFF WITH A 250mm TOLERANCE OF LAKEBED.
- 4: SIZE: CIRCULAR HSS 324 PILES TO HAVE THICKNESS OF 11.4mm, LENGTH OF 8.7m, AND OUTER DIAMETER OF 324mm.



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| REVISIONS: | DATE: | |
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| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

SCALE: AS NOTED CLASS:

PROJECT:
WEST PIER REHABILITATION

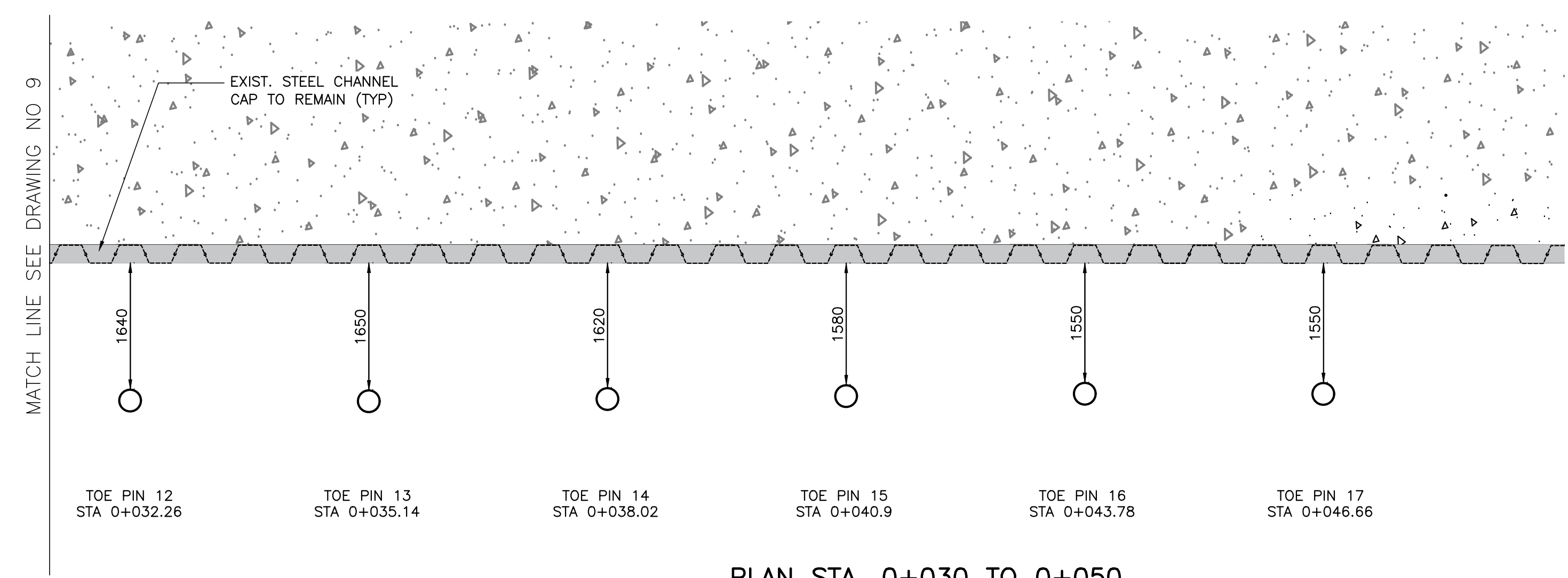
DESCRIPTION:
TOE PINS
STA. 0+030 TO 0+050

DRAWN: **S.D.** APPROVED: **R.I.M.**

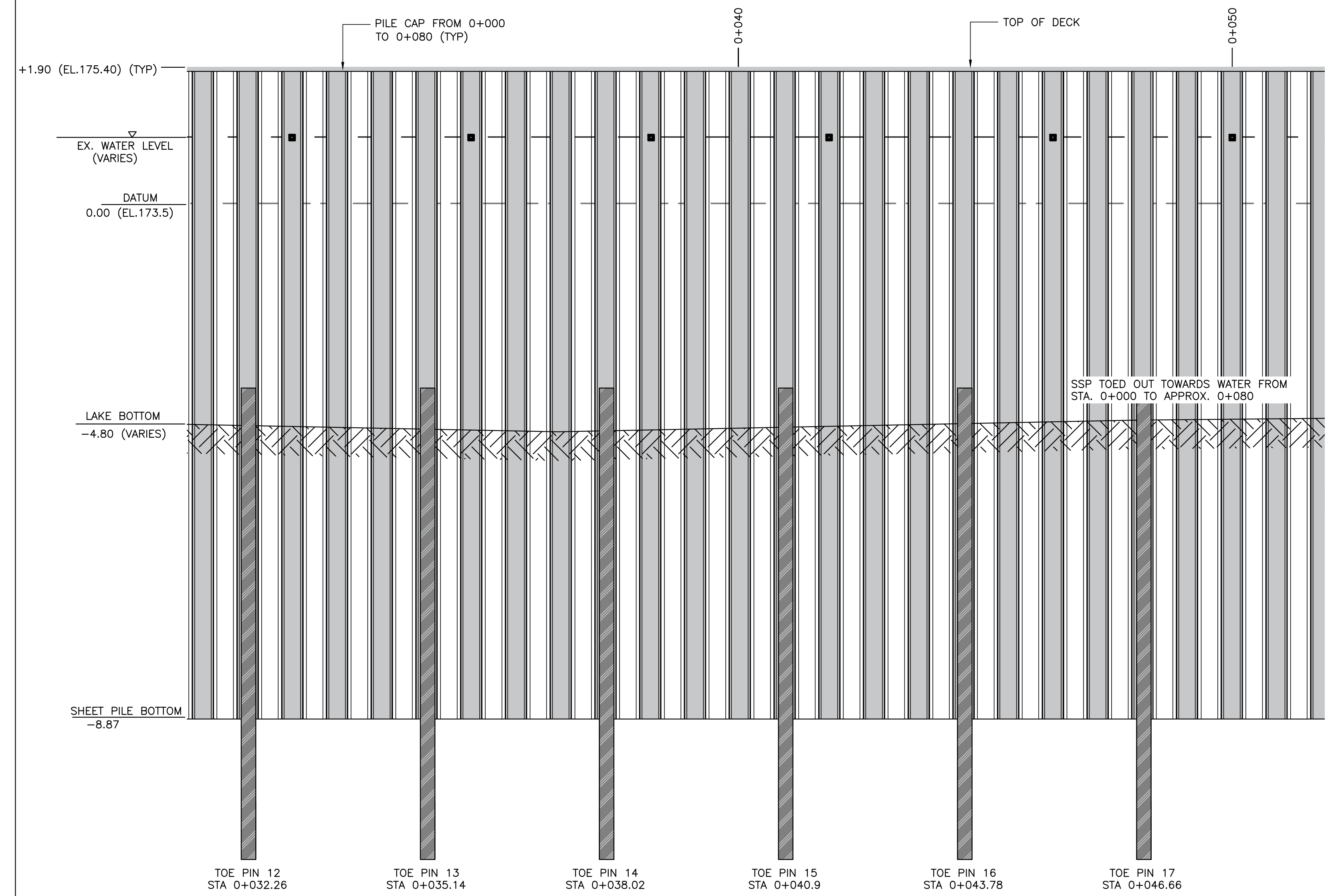
DATE: **MAR 2017** DATE:

LOCATION:
RONDEAU (ERIEAU) HARBOUR ONTARIO

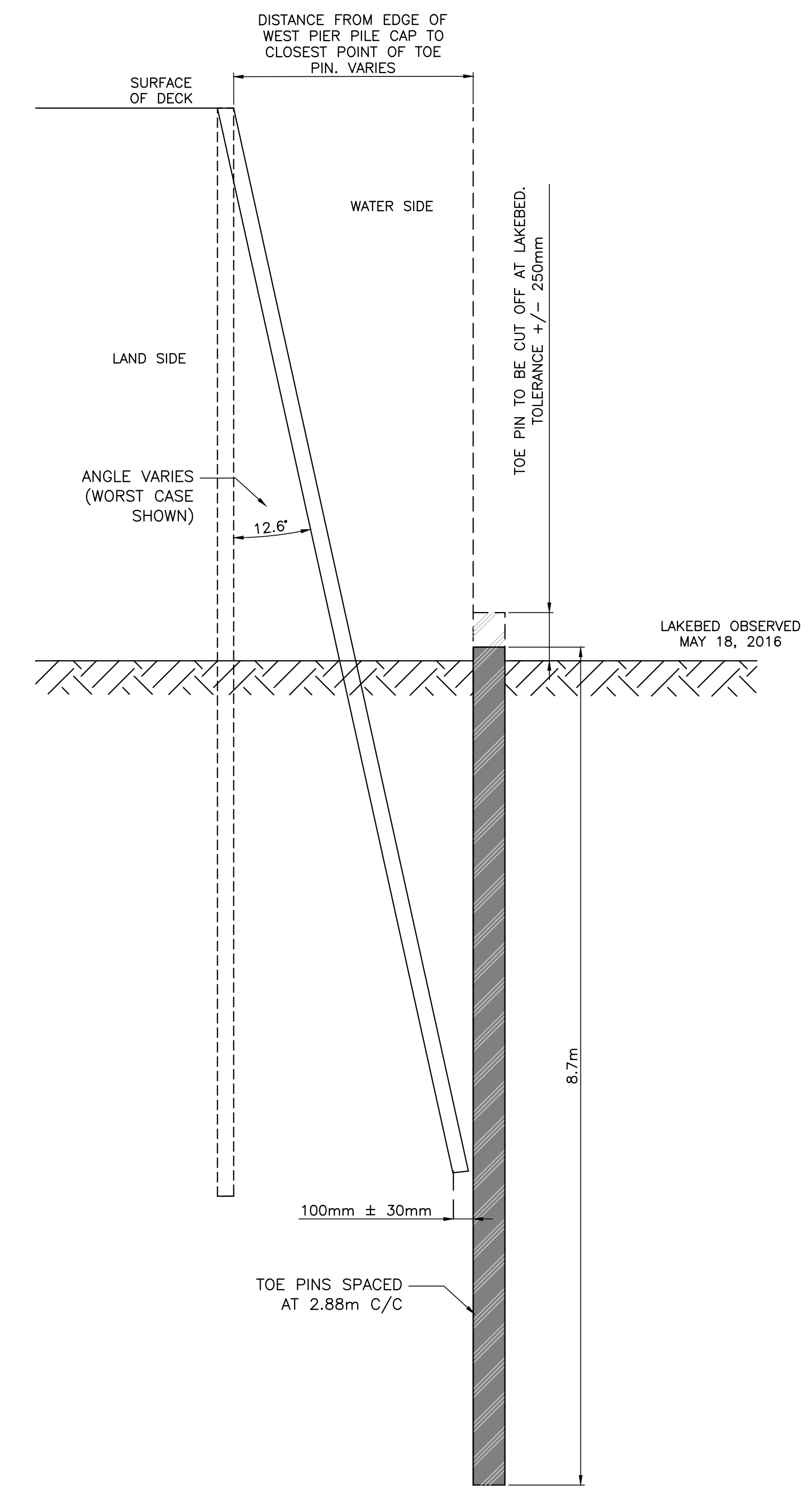
DRAWING NO.: **10** LOCATOR CODE: **4797**



PLAN STA. 0+030 TO 0+050
 SCALE: 1:50



ELEVATION, ST. 0+030 TO 0+050
 SCALE: 1:50



TOE PIN DRIVING DEPTH AND OFFSET DETAIL
 SCALE: 1:40





NOTES

- LADDERS TO BE INSTALLED AT STA -210, 012, 072, 132, 192, 252, AND 312
- 13 TOTAL FENDERS TO BE INSTALLED FROM STA 130 TO 170 @ 2.88m C/C SPACING
- RUBBER FOR D-SHAPED FENDER TO BE EPDM (M-CLASS) RUBBER

| REVISIONS: | DATE: | |
|------------|--------------------|------------|
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

AS NOTED

PROJECT:

**WEST PIER
 REHABILITATION**

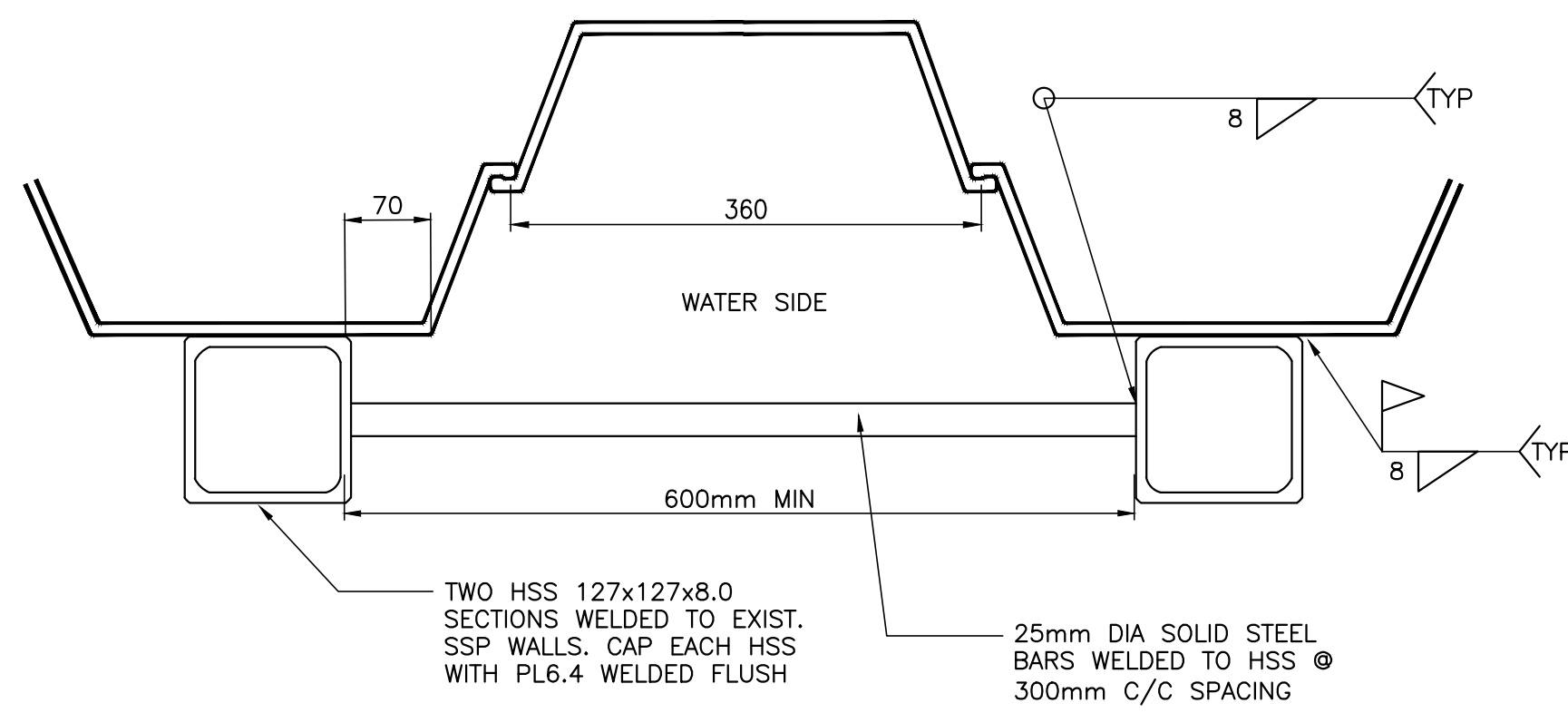
DESCRIPTION:
**LADDERS, FENDERS, AND
 BOLLARD**
 STA. 0+000 TO 0+332.97

DRAWN: **S.D.** APPROVED: **R.I.M.**

DATE: **MAR 2017** DATE:

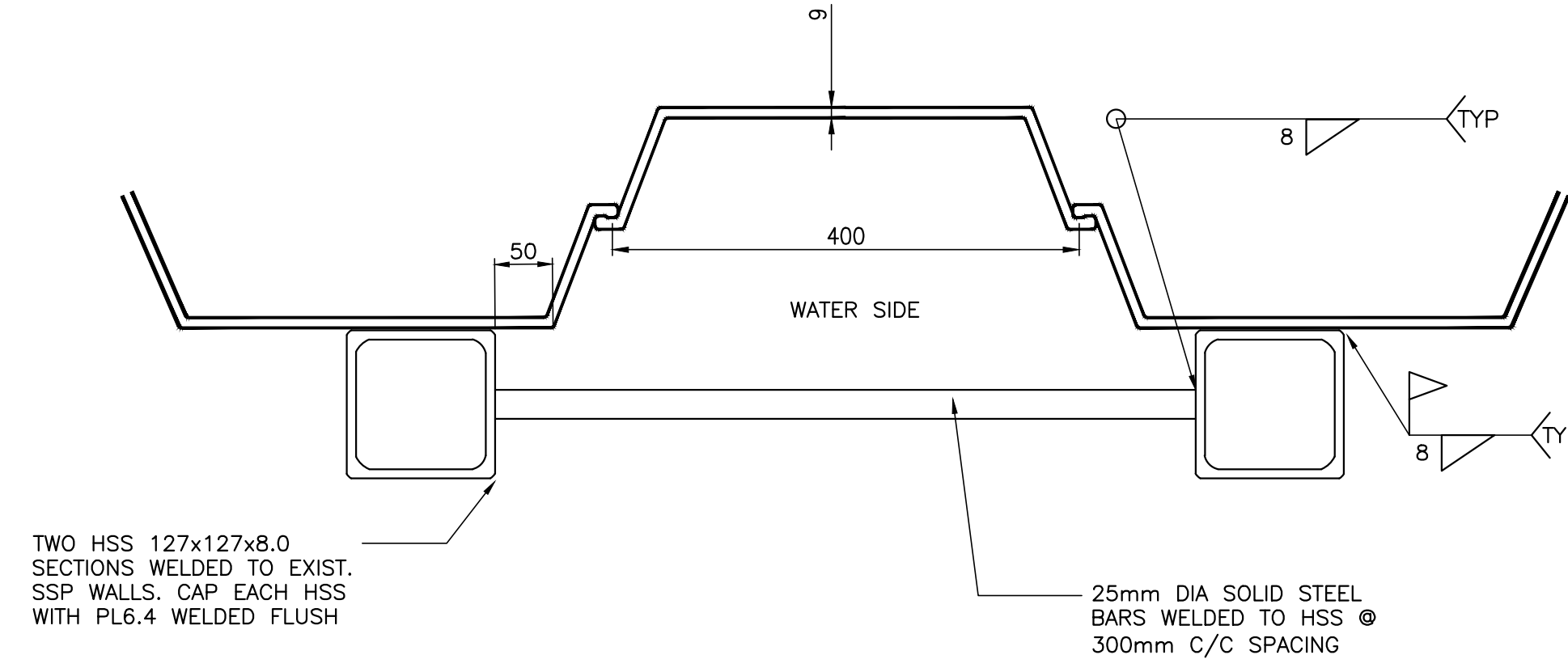
LOCATION:
**RONDEAU (ERIEAU)
 HARBOUR
 ONTARIO**

DRAWING NO.: **11** LOCATOR CODE: **4797**



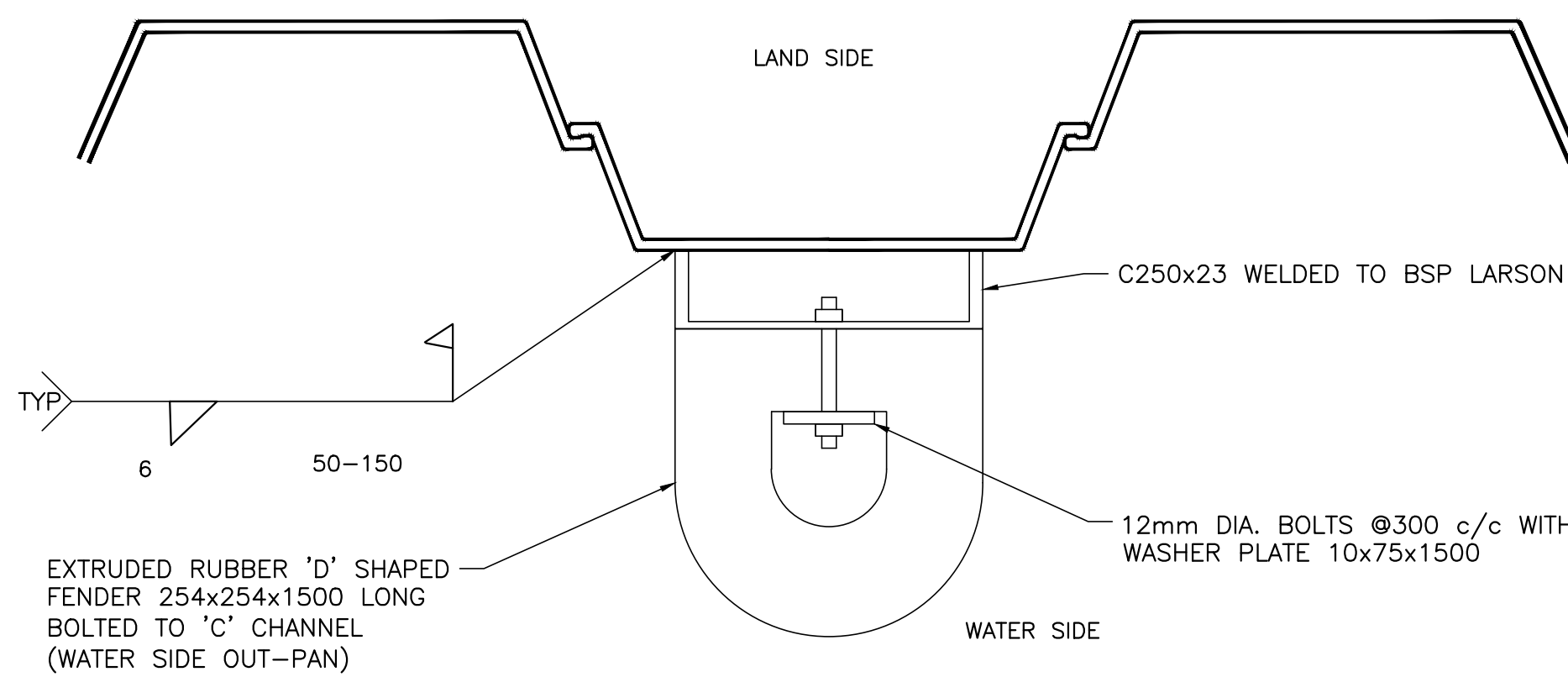
LADDER DETAIL FOR U-SHAPED ALGOMA A-6 S.S.P.
 STA. 0+012, 0+072, 0+312

SCALE: 1:5



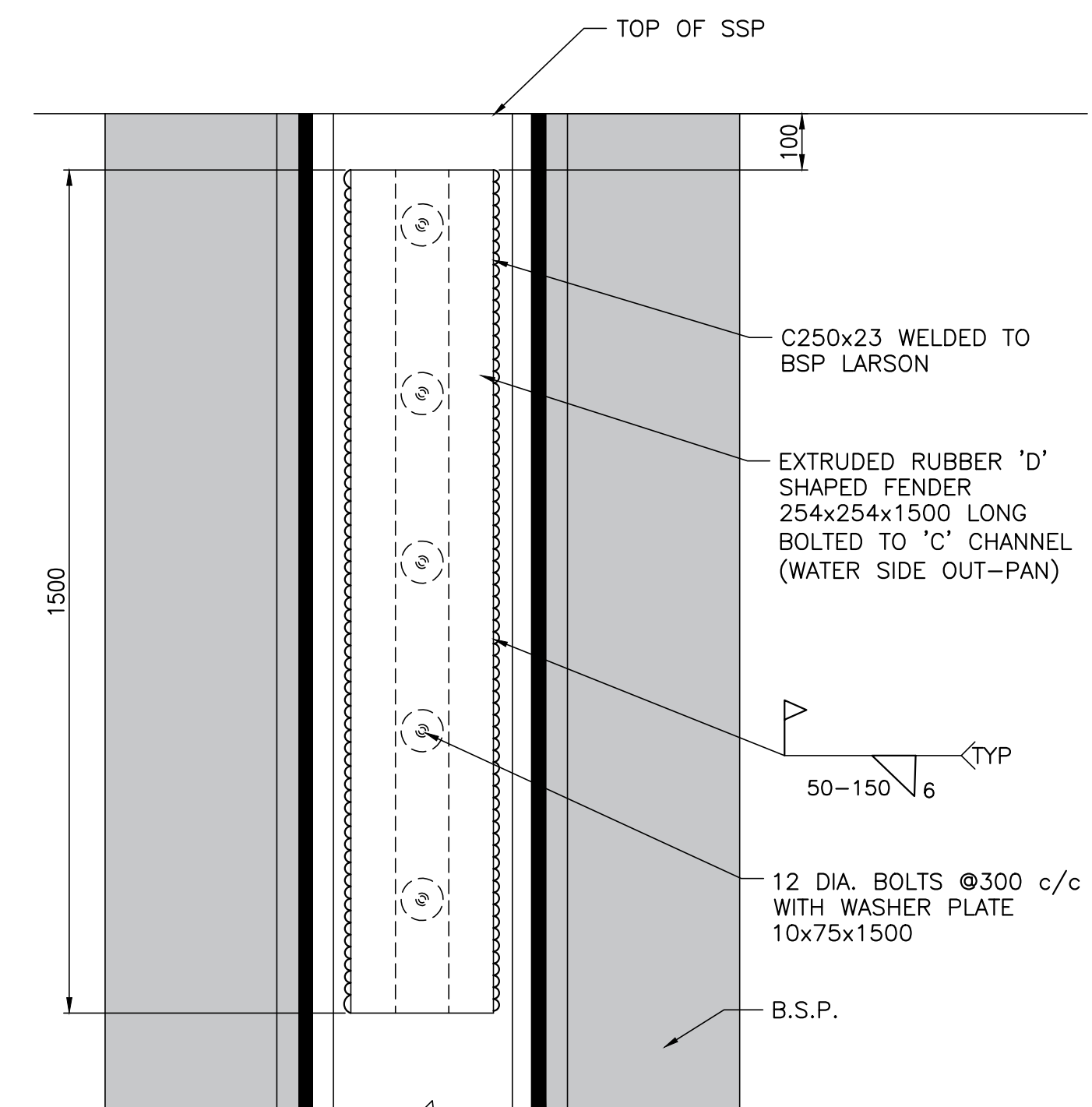
LADDER DETAIL FOR LARSON B.S.P.
 STA. 0+132, 0+192, 0+252

SCALE: 1:5

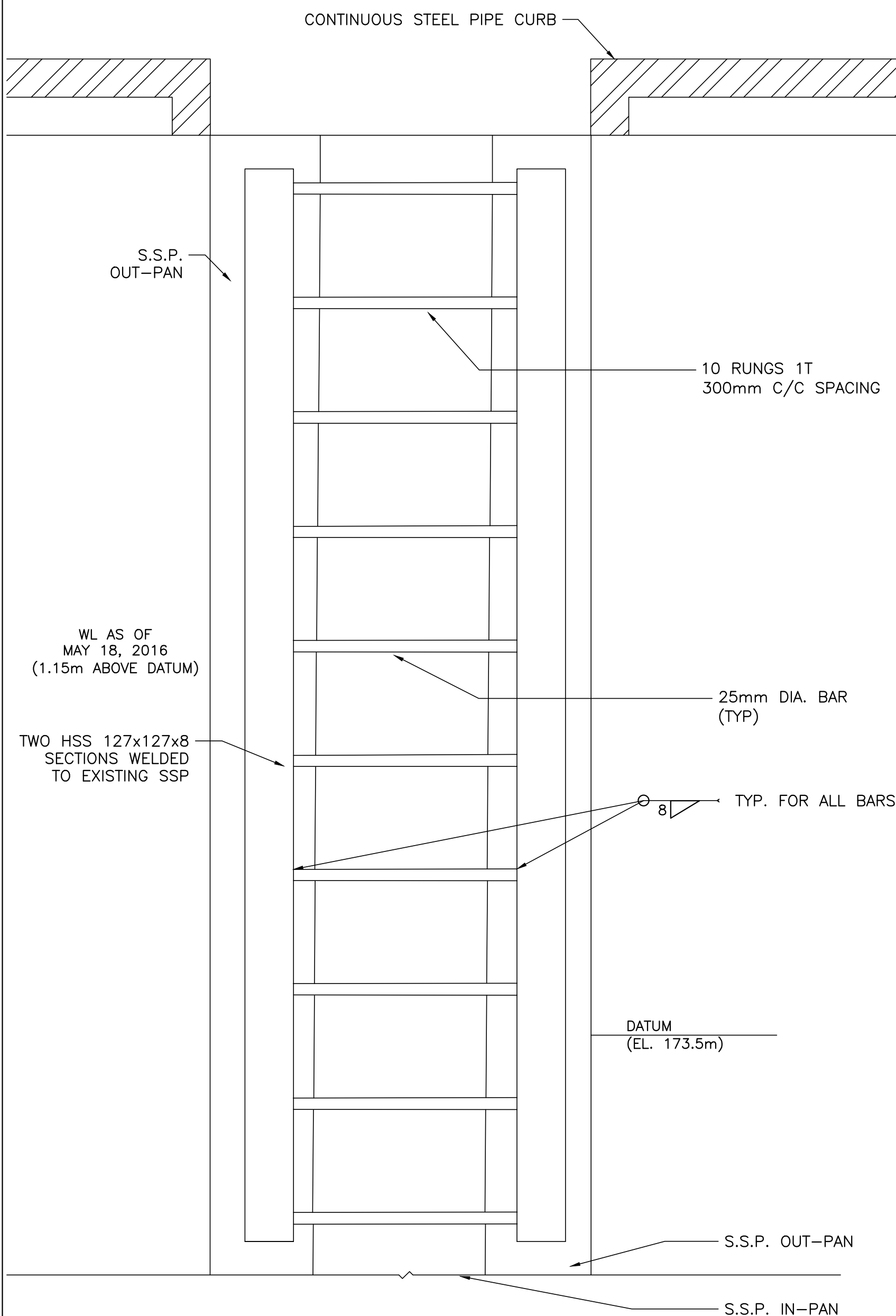


FENDER DETAIL FOR LARSON B.S.P. (WATER SIDE OUT-PAN)
 STA. 0+130 TO 0+170

SCALE: 1:5

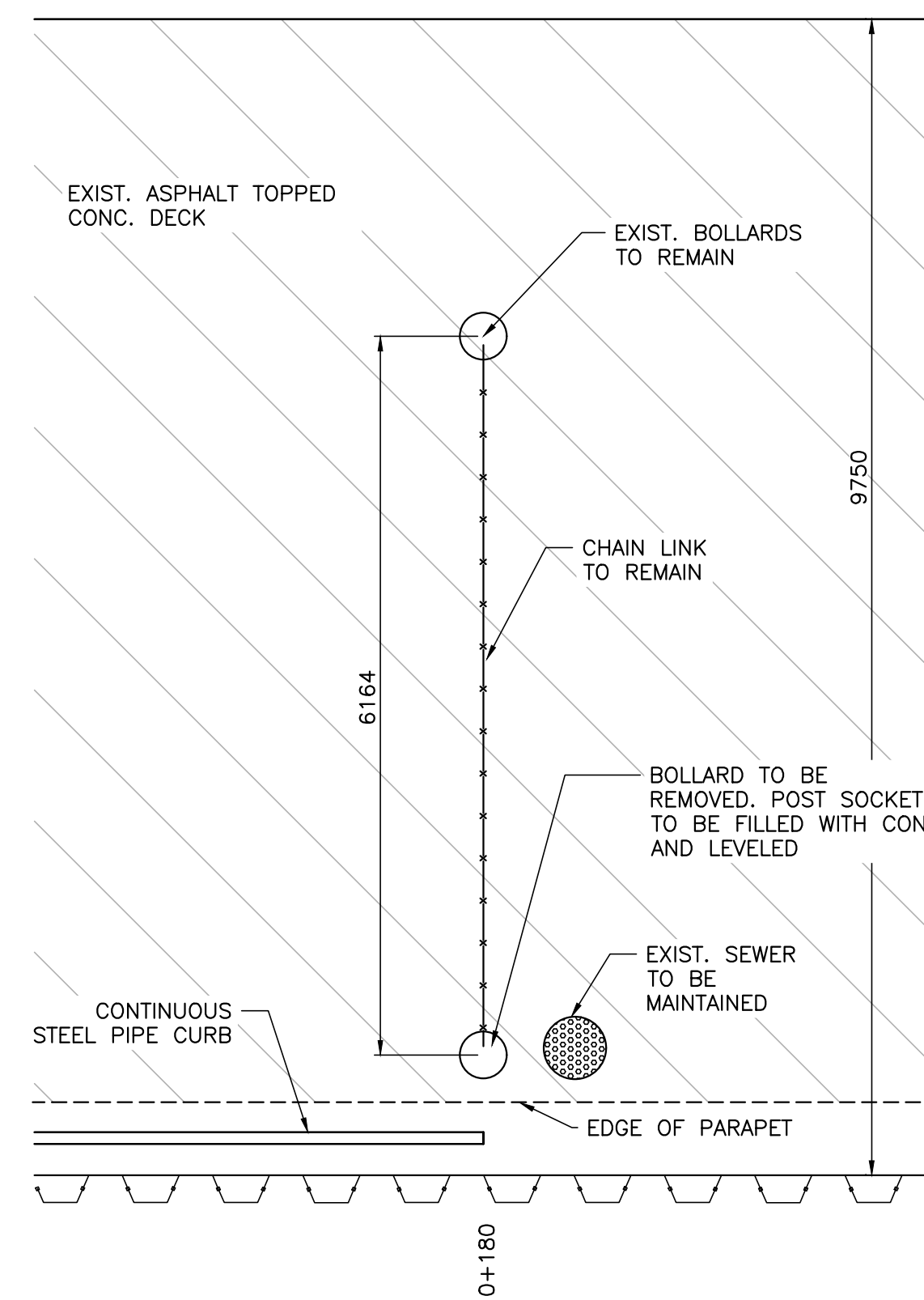


**FENDER ELEVATION:
 (WATER SIDE OUT-PAN)**
 SCALE: 1:10



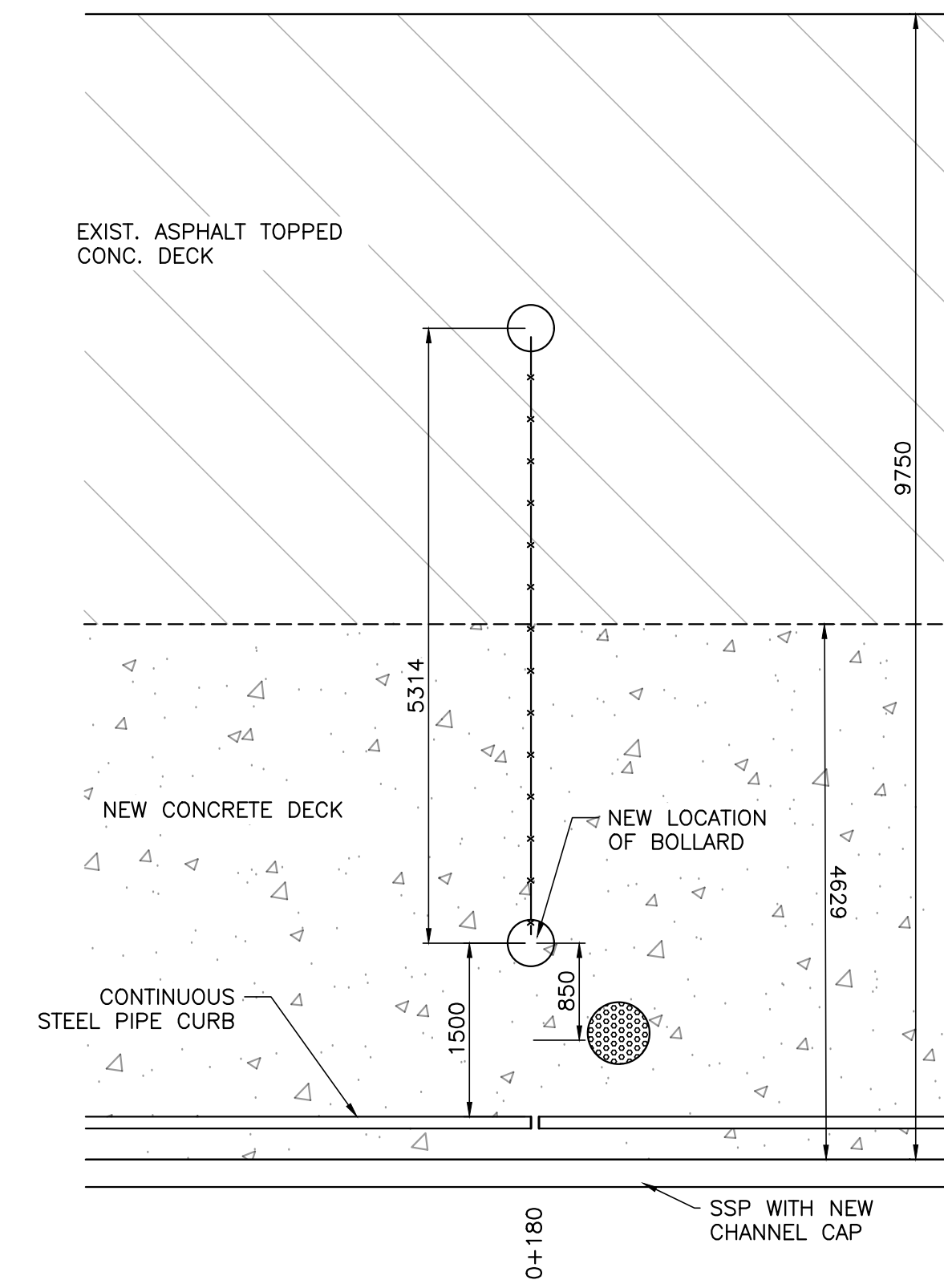
SAFETY LADDER ELEVATION:
 STA. 0+000, 0+060, 0+120, 0+180, 0+240, 0+300

SCALE: 1:10



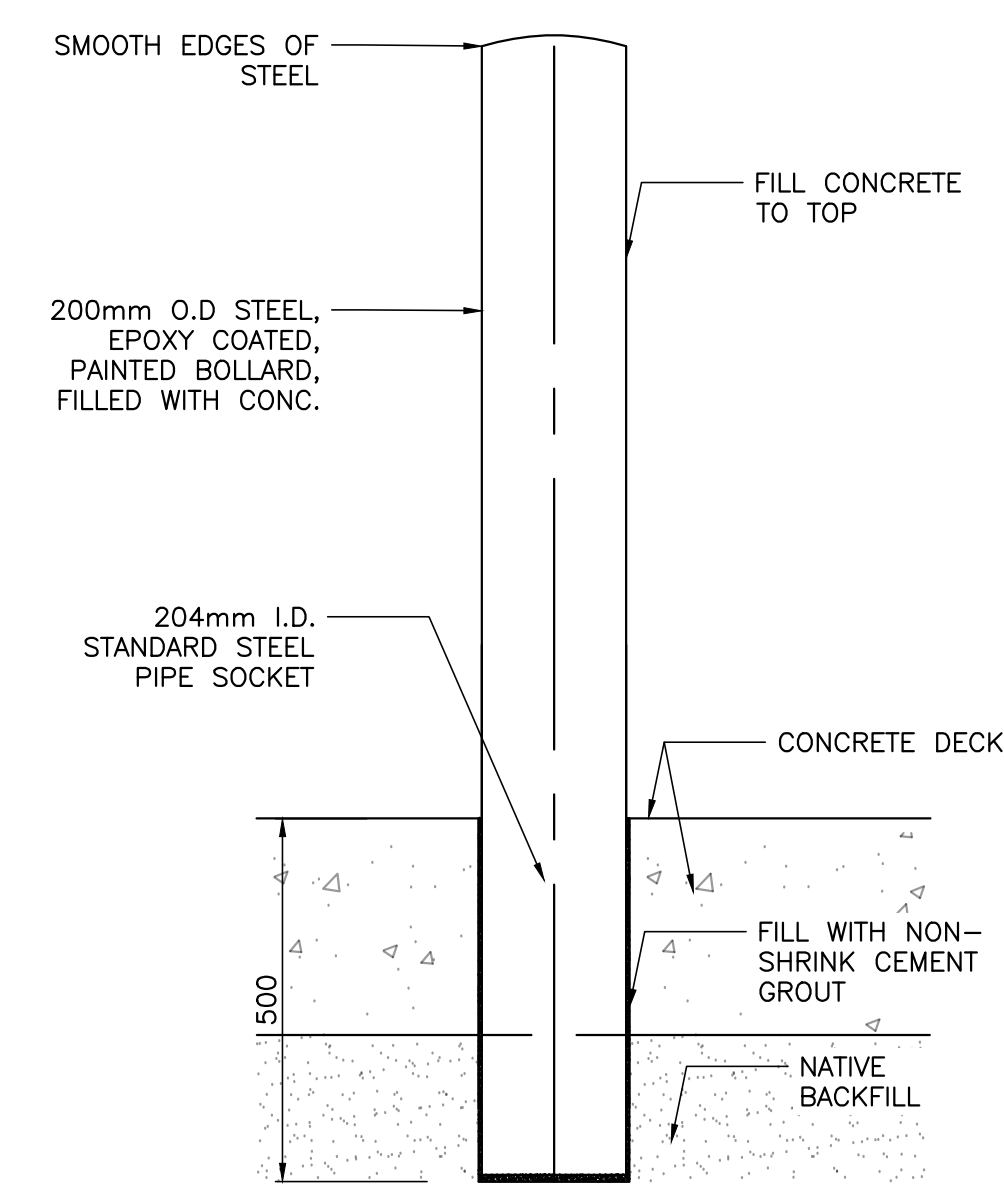
EXISTING BOLLARD/CHAIN AT STA 0+180

SCALE: 1:50



NEW BOLLARD/CHAIN AT STA 0+180

SCALE: 1:50



BOLLARD DETAIL AT STA 0+180

SCALE: 1:10





NOTES

- 1: NORTH SECTION SUPERSTRUCTURE BEYOND ARMOUR STONE TO BE DEMOLISHED
- 2: SALVAGE CONCRETE SUPERSTRUCTURE WHERE POSSIBLE TO USE AS FILL FOR NEW SECTION
- 3: ALL TIMBER PILES TO BE REMOVED
- 4: STEEL SHEET PILES TO BE DRIVEN AROUND OUTLINE OF NEW STRUCTURE
- 5: CONCRETE ANCHOR BLOCK TO BE CAST IN PLACE AT STATION 323
- 6: TIE RODS TO BE INSTALLED AT 3.08m AND 3.81m SPACING TO NEW STEEL SHEET PILES
- 7: 6.35m OF 20-50mm CRUSHED STONE TO BE PLACED WITHIN NEW STEEL SHEET PILES
- 8: 600mm GRAN B TO BE POURED ATOP CRUSHED STONE, FOLLOWED BY GEOTEXTILE CLOTH, AND 150mm GRAN A
- 9: 150mm REINFORCED CONCRETE DECK TO BE PLACED ATOP FILL AND GEOTEXTILE
- 10: UNDERWATER WELDING REQUIRED FOR ENCLOSURE DETAIL 1

| REVISIONS: | DATE: |
|------------|--------------------|
| 4 | 100% SUBMISSION |
| 3 | 99% SUBMISSION |
| 2 | 66% SUBMISSION |
| 1 | PRELIMINARY DESIGN |

AS NOTED

PROJECT:
WEST PIER REHABILITATION

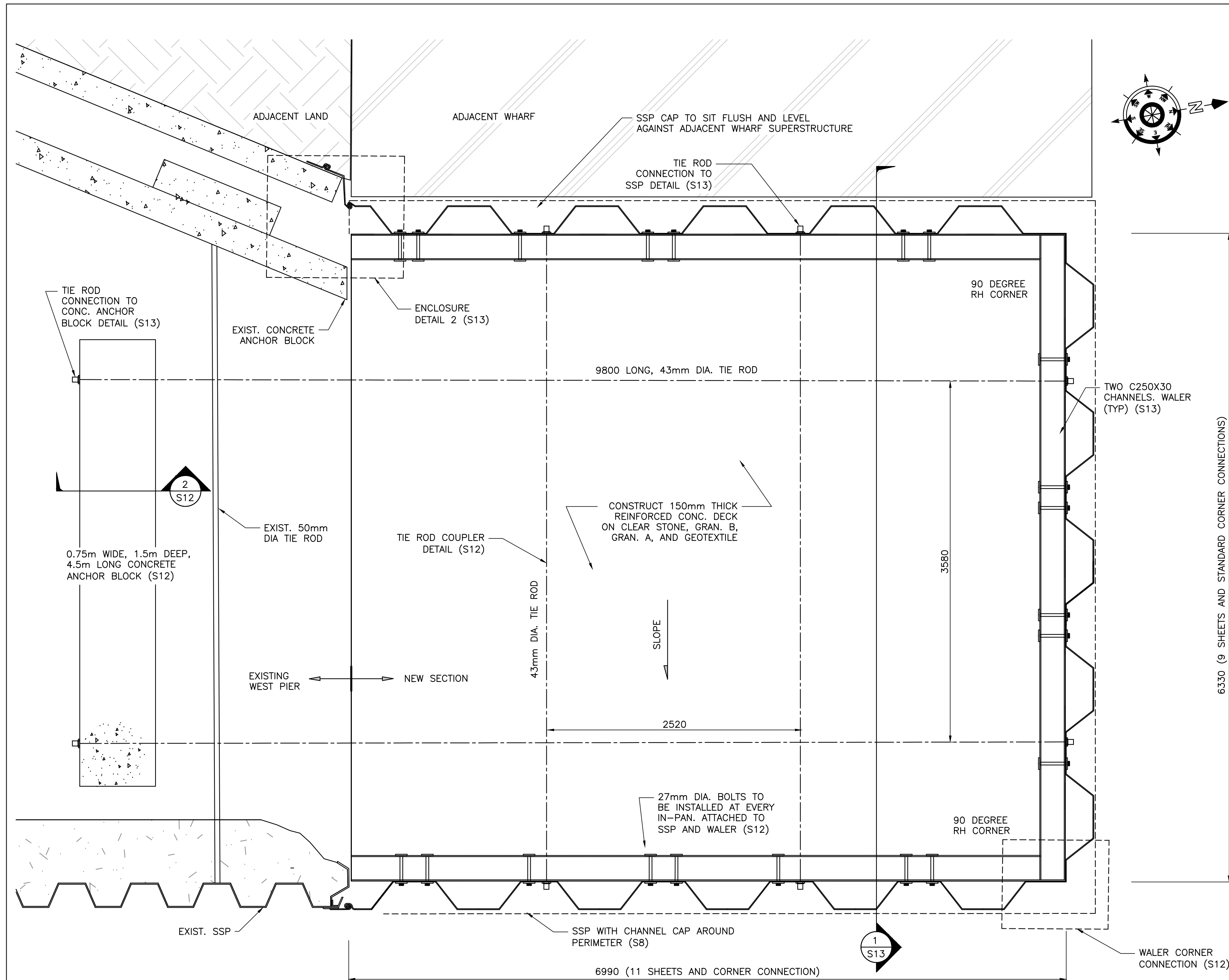
DESCRIPTION:
PROPOSED NORTH END AND CONNECTION DETAILS

DRAWN: S.D. **APPROVED:** R.I.M.

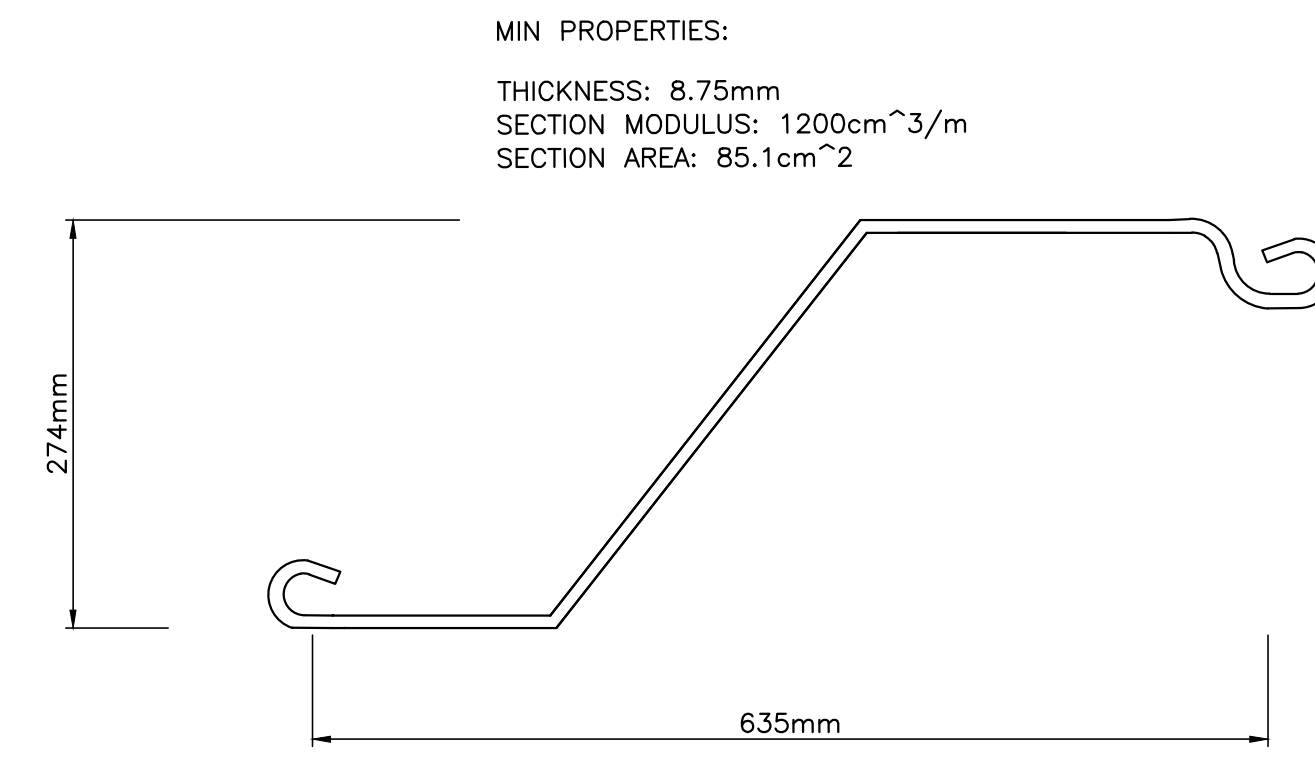
DATE: MAR 2017

LOCATION:
RONDEAU (ERIEAU) HARBOUR ONTARIO

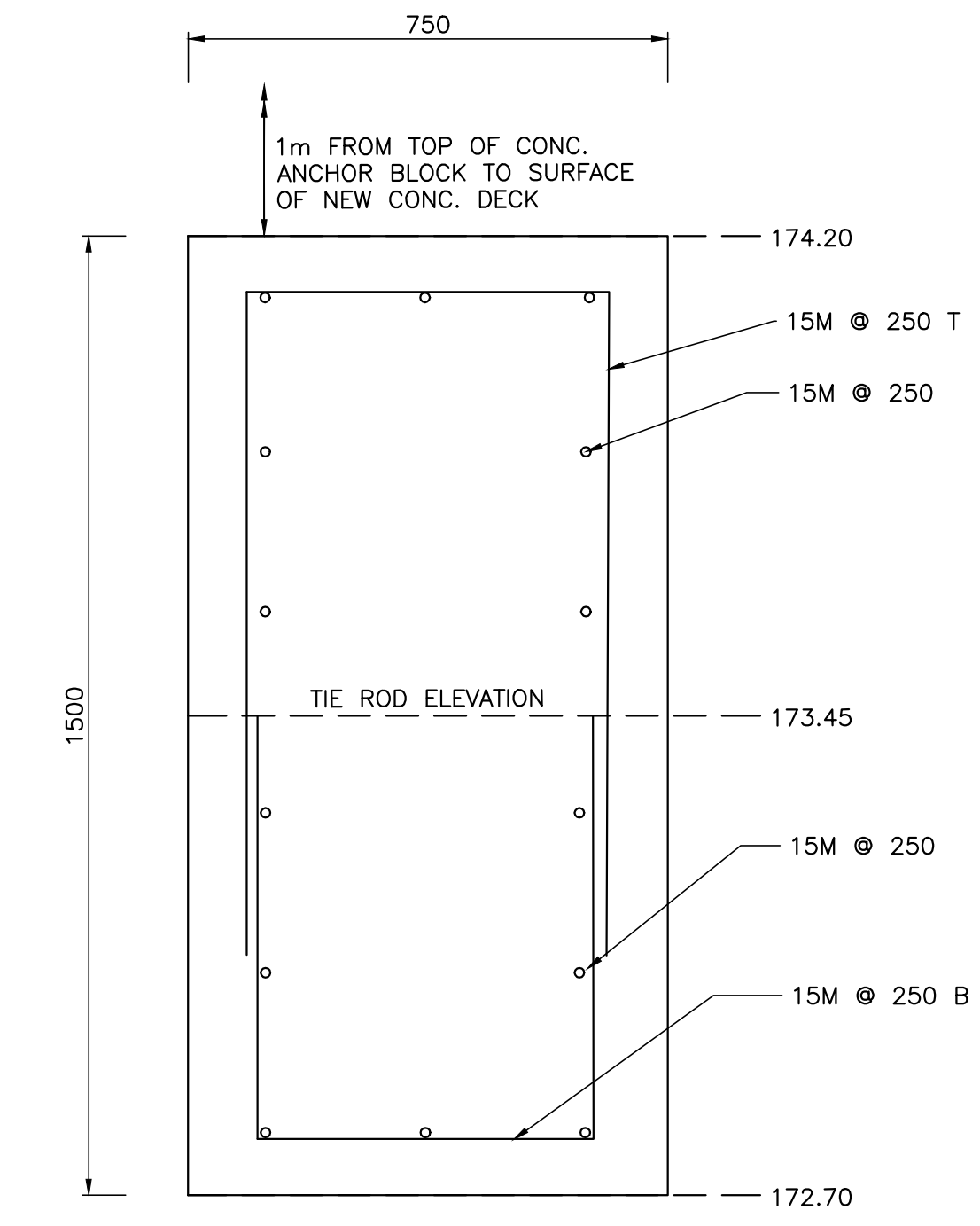
DRAWING NO.: 12 **LOCATOR CODE:** 4797



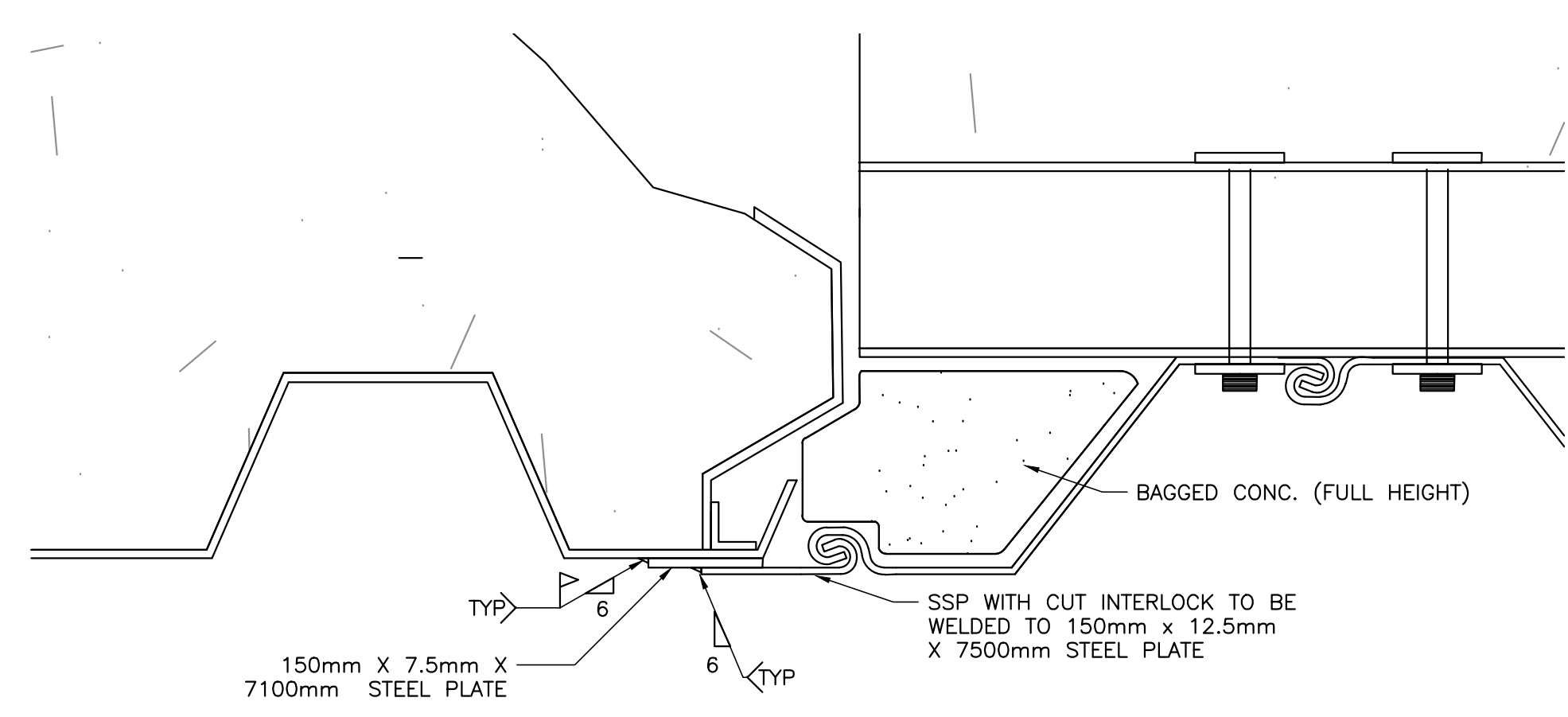
PROPOSED NORTH END OF WEST PIER
 SCALE: 1:25



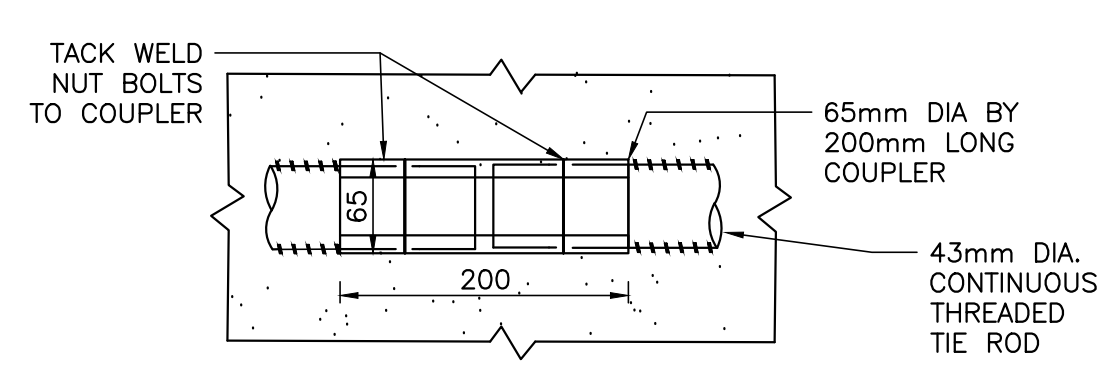
SSP MINIMUM DIMENSIONS
 SCALE: 1:5



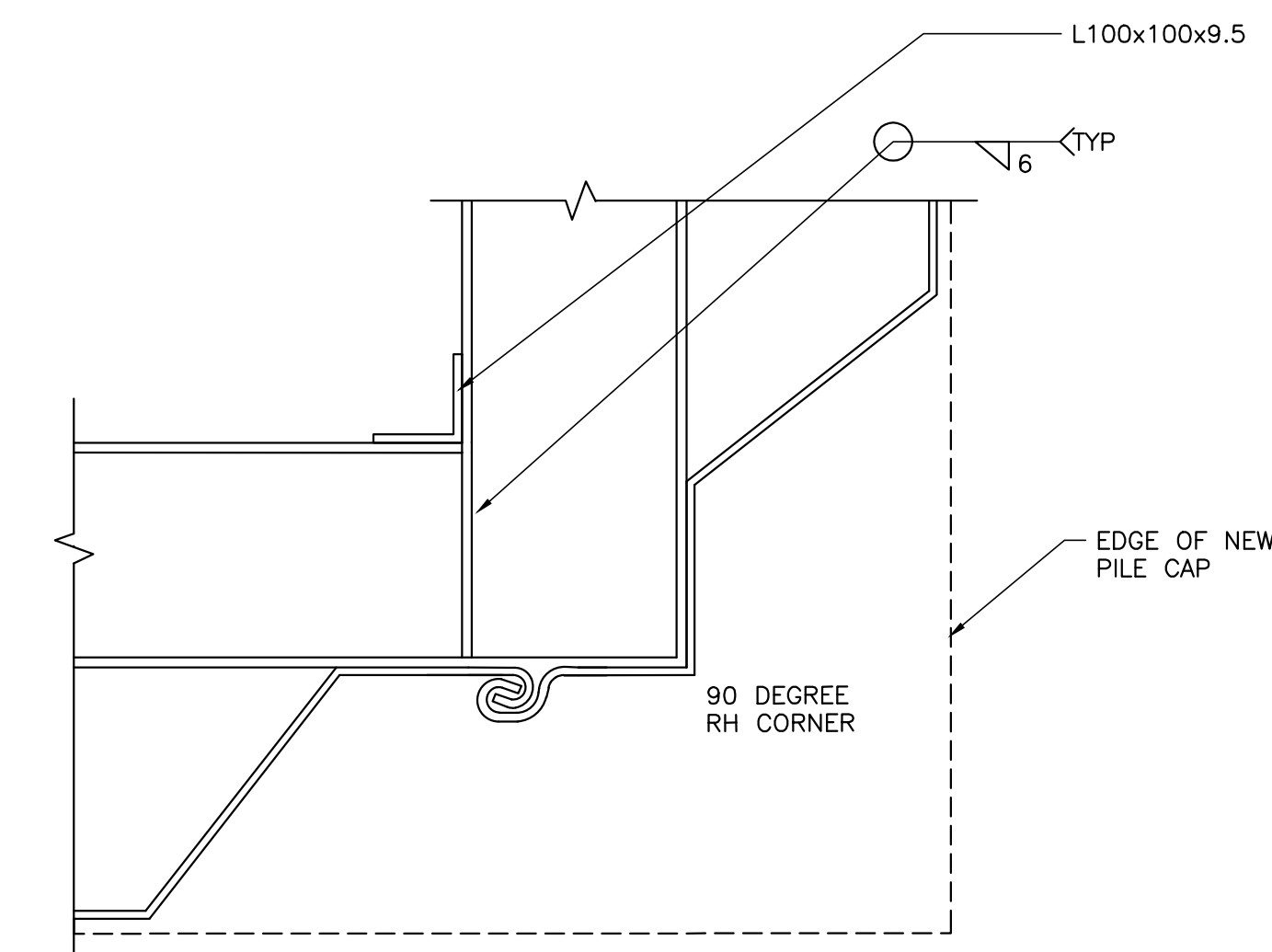
SECTION 2: CONCRETE ANCHOR BLOCK REBAR DETAIL
 SCALE: 1:10



ENCLOSURE DETAIL 1: STEEL SHEET PILE AT SOUTH EAST CORNER OF NORTH SECTION
 SCALE: 1:7.5



TIE ROD COUPLER DETAIL
 SCALE: 1:5



WALER CORNER CONNECTION (NORTHEAST AND NORTHWEST CORNERS)
 SCALE: 1:7.5





NOTES

- 1: NORTH SECTION SUPERSTRUCTURE TO BE DEMOLISHED
- 2: ALL TIMBER PILES TO BE REMOVED
- 3: STEEL SHEET PILES TO BE DRIVEN AROUND OUTLINE OF NEW STRUCTURE
- 4: CONCRETE ANCHOR BLOCK TO BE CAST IN PLACE AT STATION 323
- 5: TIE RODS TO BE INSTALLED AT 3.08m SPACING LATERALLY AND HORIZONTALLY TO NEW STEEL SHEET PILES
- 6: 6.35m OF 20-50mm CRUSHED STONE TO BE PLACED WITHIN NEW STEEL SHEET PILES
- 7: 600mm GRAN B TO BE POURED ATOP CRUSHED STONE, FOLLOWED BY GEOTEXTILE CLOTH, AND 150mm GRAN A
- 8: 150mm REINFORCED CONCRETE DECK TO BE PLACED ATOP FILL AND GEOTEXTILE

| REVISIONS: | DATE: | |
|------------|--------------------|------------|
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

SCALE: AS NOTED CLASS:

PROJECT:
WEST PIER REHABILITATION

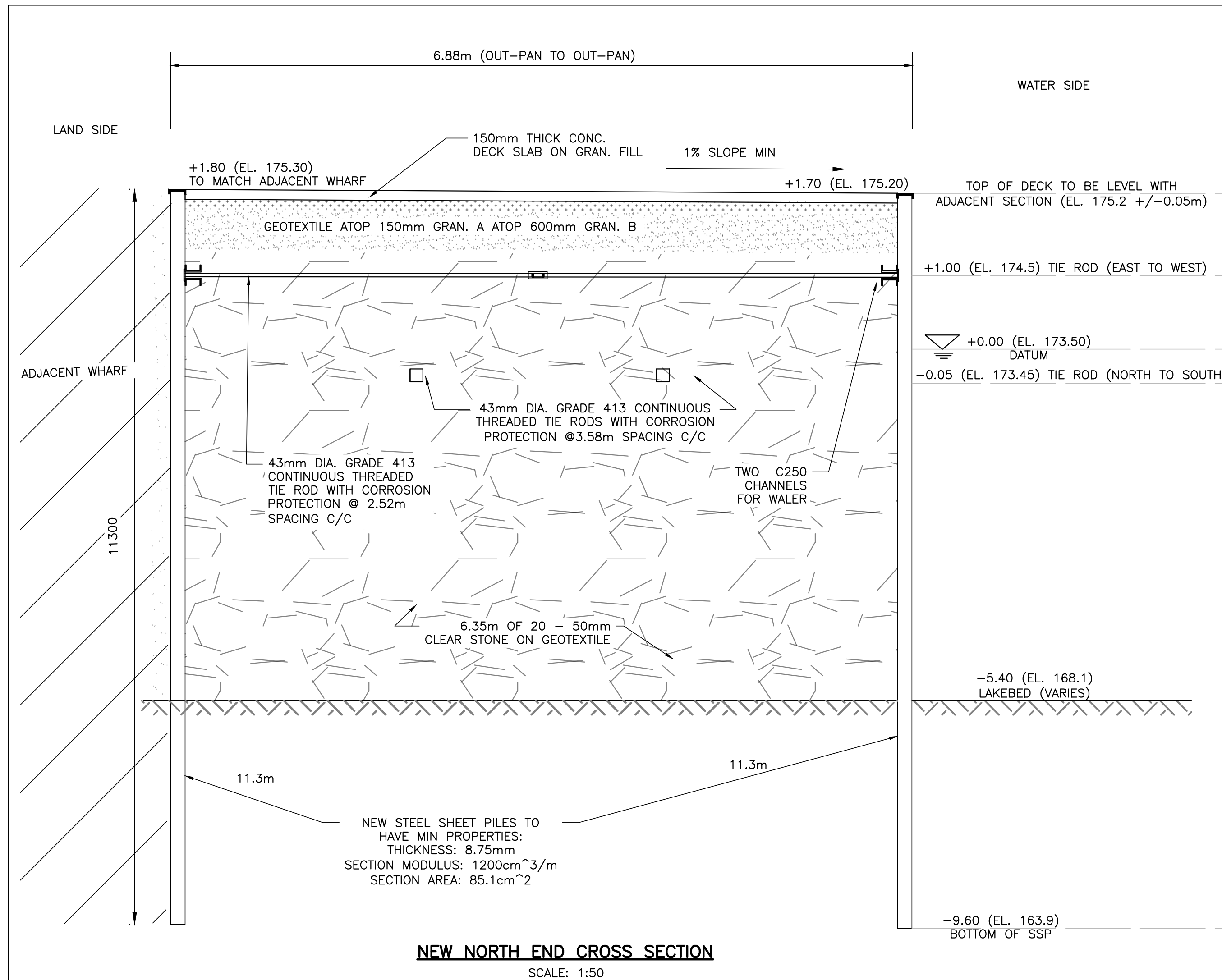
DESCRIPTION:
PROPOSED NORTH END AND CONNECTION DETAILS

DRAWN: **S.D.** APPROVED: **R.I.M.**

DATE: **MAR 2017** DATE:

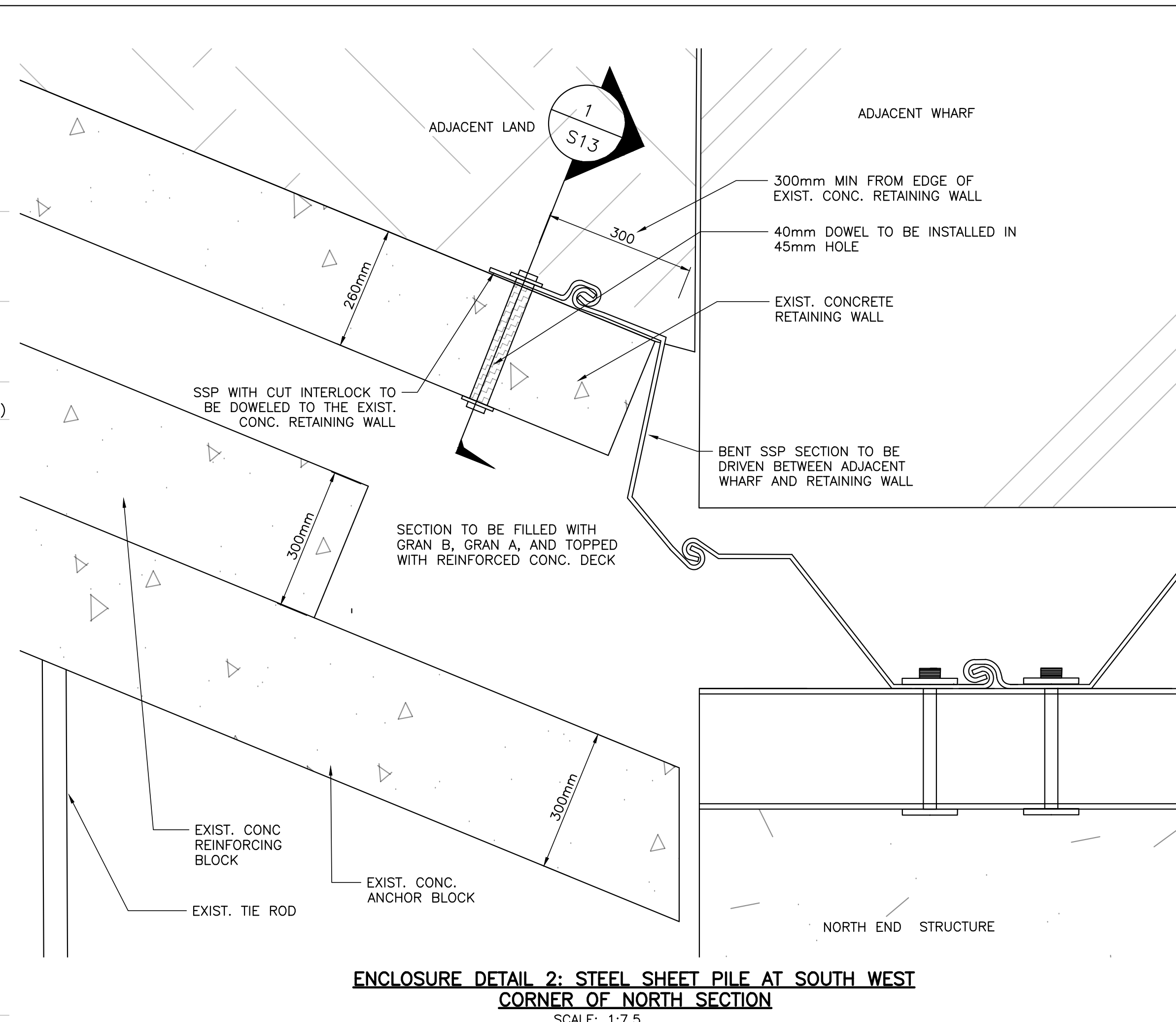
LOCATION:
RONDEAU (ERIEAU) HARBOUR ONTARIO

DRAWING NO.: **13** LOCATOR CODE: **4797**



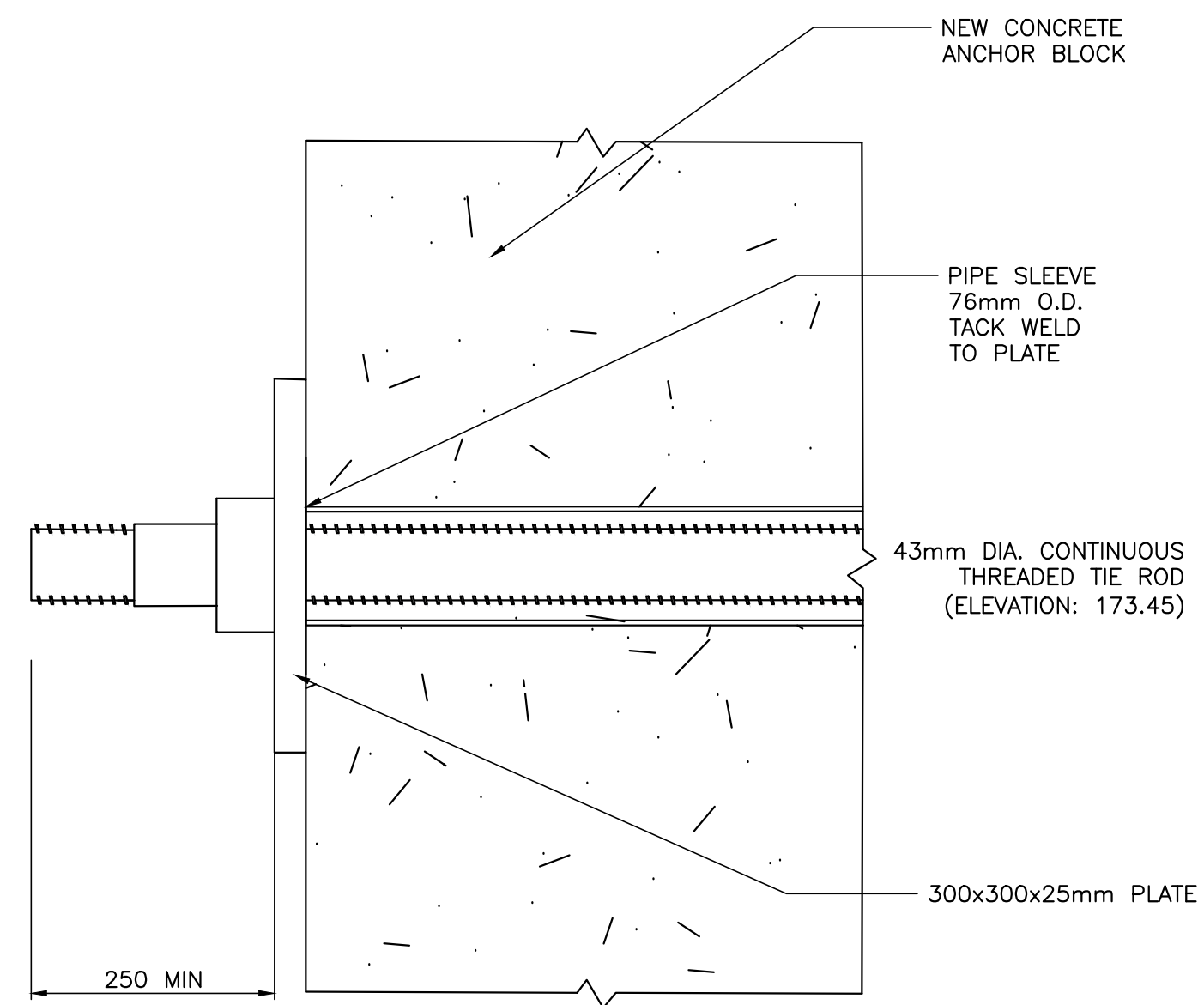
NEW NORTH END CROSS SECTION

SCALE: 1:50



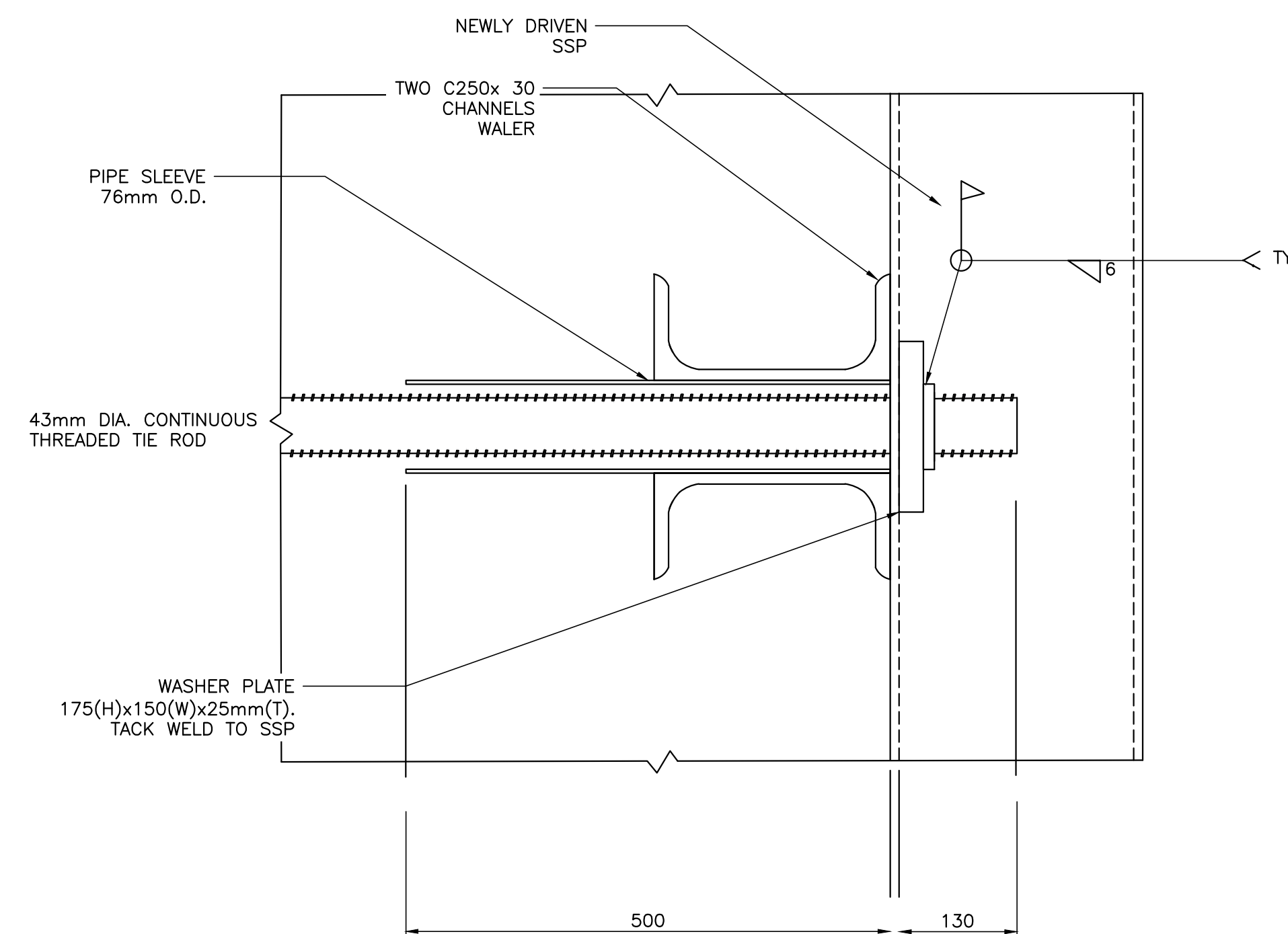
ENCLOSURE DETAIL 2: STEEL SHEET PILE AT SOUTH WEST CORNER OF NORTH SECTION

SCALE: 1:7.5



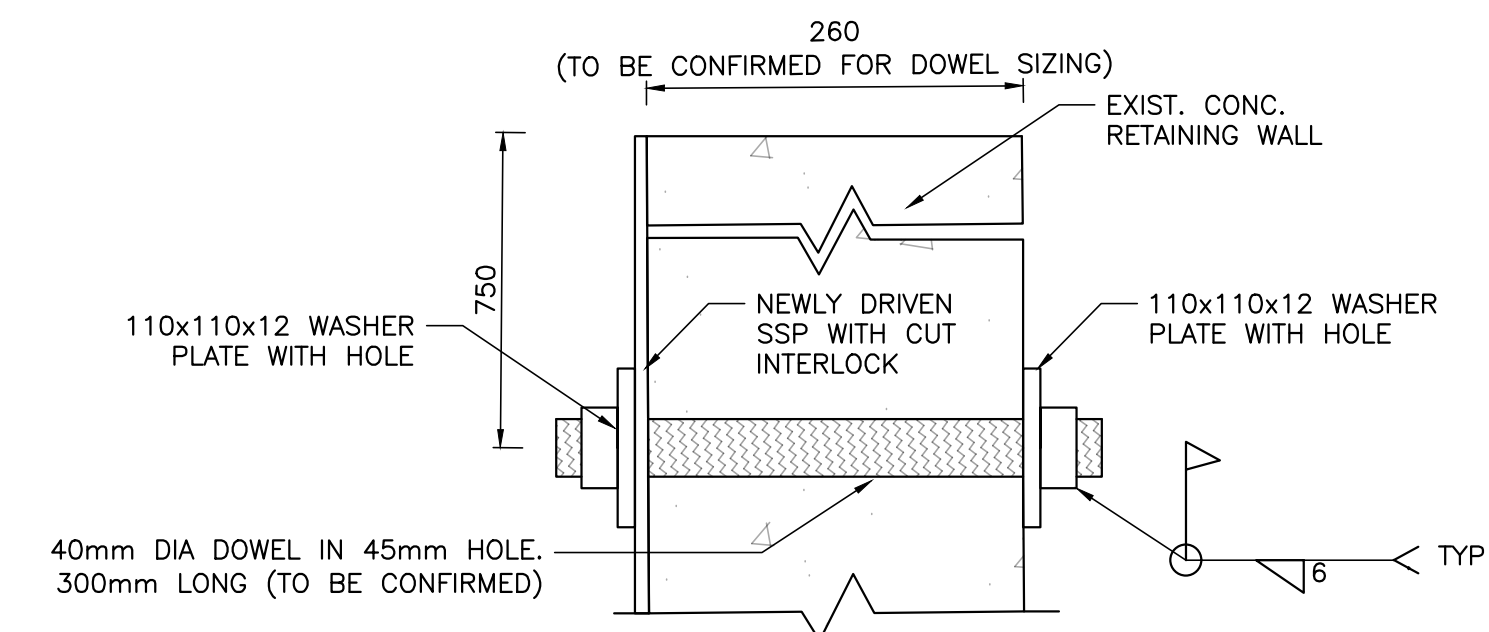
TIE ROD CONNECTION TO CONCRETE ANCHOR BLOCK DETAIL

SCALE: 1:5



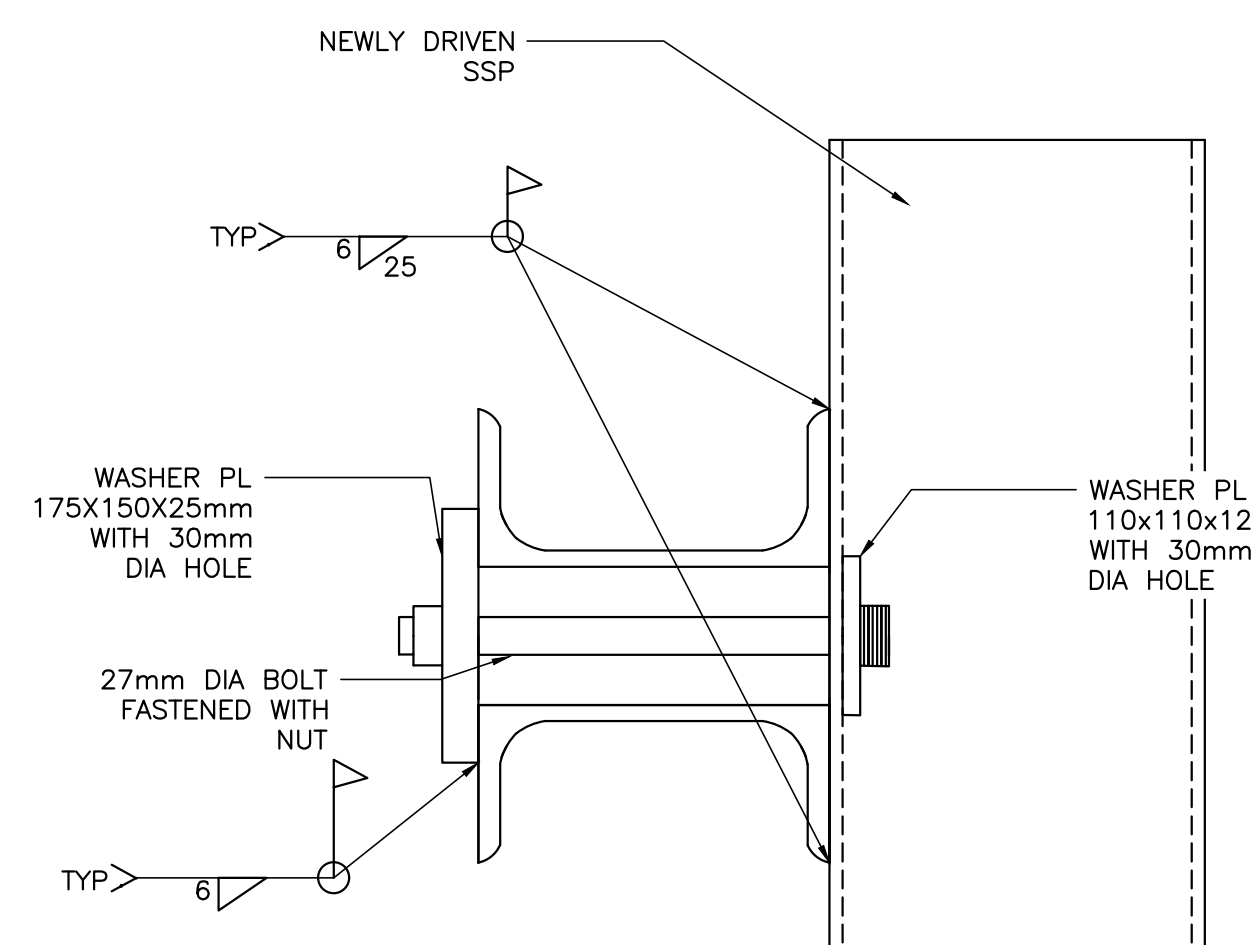
TIE ROD CONNECTION TO STEEL SHEET PILE DETAIL

SCALE: 1:5



ENCLOSURE DETAIL 2: DOWEL CONNECTION TO RETAINING WALL

SCALE: 1:5

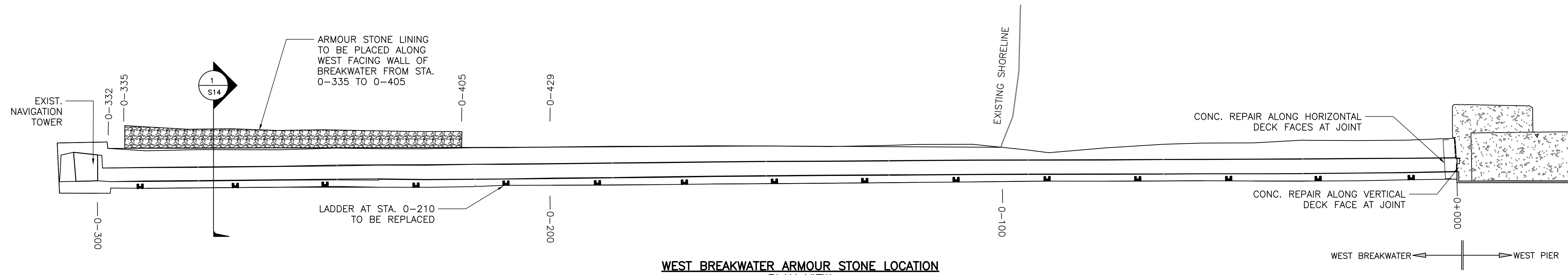


BOLT CONNECTION TO STEEL SHEET PILE DETAIL

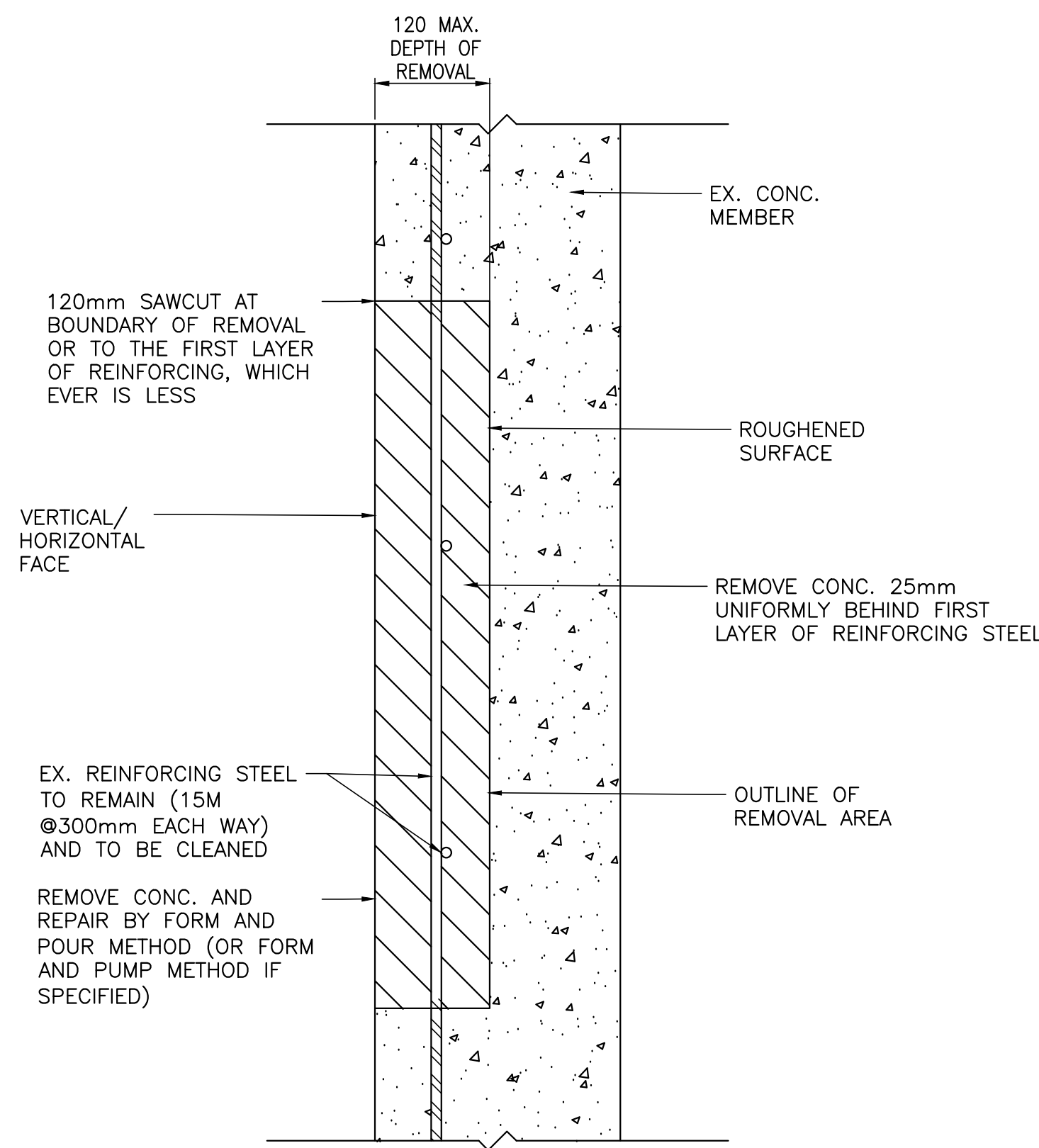
SCALE: 1:5



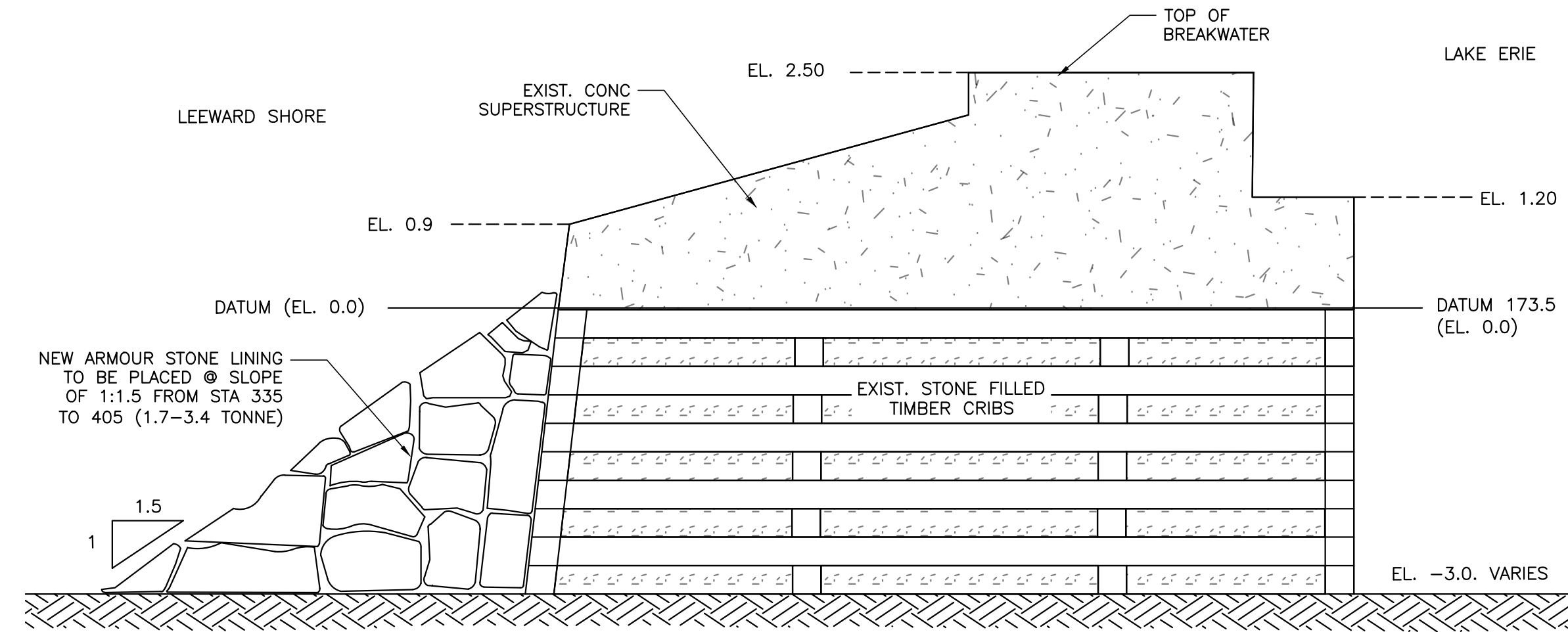
**SMALL CRAFT HARBOURS
CENTRAL AND ARCTIC REGION**



**WEST BREAKWATER ARMOUR STONE LOCATION
PLAN VIEW**
SCALE: 1:500



VERTICAL/HORIZONTAL SURFACE REMOVAL/REPAIR DETAIL (STA. 000)
SCALE: 1:5



**TYPICAL BREAKWATER ARMOUR
STONE SECTION DETAIL**
SCALE: 1:50

NOTES

- CONCRETE REPAIR NOTES:
1. TYPICAL LOCATIONS AND AREAS OF REPAIR ARE INDICATED ON DRAWINGS. THE ACTUAL LOCATIONS AND EXTENT OF REMOVAL WILL BE DETERMINED ON SITE WITH THE CONTRACT ADMINISTRATOR.
 2. REPAIR TO ORIGINAL SURFACE, UNLESS OTHERWISE INSTRUCTED BY THE CONTRACT ADMINISTRATOR.
 3. CONCRETE REMOVALS SHALL BE BASED ON A VISUAL AND DELAMINATION SURVEY.
 4. SAWCUTS IN CONCRETE, UNLESS OTHERWISE SHOWN, SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING, WHICHEVER IS SMALLER.
 5. DEEPER REMOVALS WILL BE REQUIRED WHERE UNSOUND CONCRETE IS ENCOUNTERED BELOW THE SECOND LAYER OF REINFORCING STEEL.



80 North Queen Street, Suite 302
Toronto, ON, Canada, M8Z 2C9
Tel. (416) 626 - 5300 FAX: (416) 622 - 6710

| REVISIONS: | DATE: | |
|------------|--------------------|------------|
| 4 | 100% SUBMISSION | 2017-03-31 |
| 3 | 99% SUBMISSION | 2017-03-17 |
| 2 | 66% SUBMISSION | 2017-02-24 |
| 1 | PRELIMINARY DESIGN | 2016-12-01 |

SCALE: AS NOTED CLASS:

PROJECT:
**WEST PIER
REHABILITATION**

DESCRIPTION:
**JOINT AND BREAKWATER
STA. 0+000 AND 335-405 (S)**

DRAWN: **S.D.** APPROVED: **R.I.M.**

DATE: **MAR 2017** DATE:

LOCATION:
**RONDEAU (ERIEAU)
HARBOUR
ONTARIO**

DRAWING NO.: **14** LOCATOR CODE: **4797**

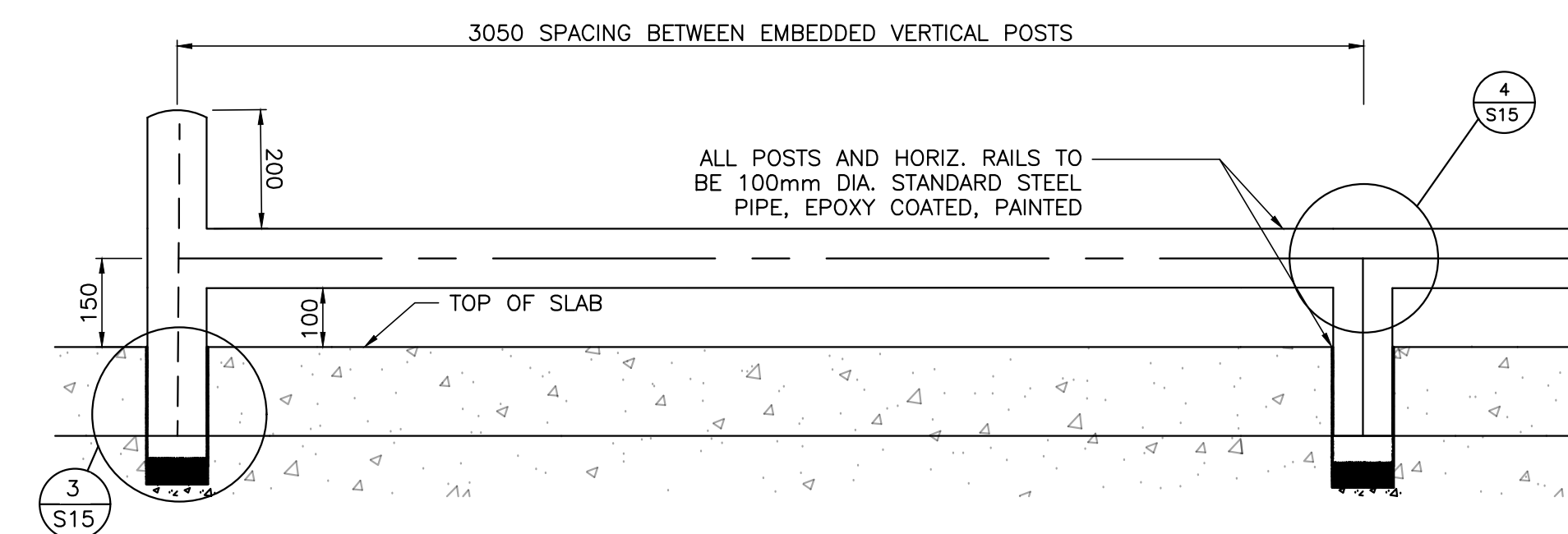




NOTES

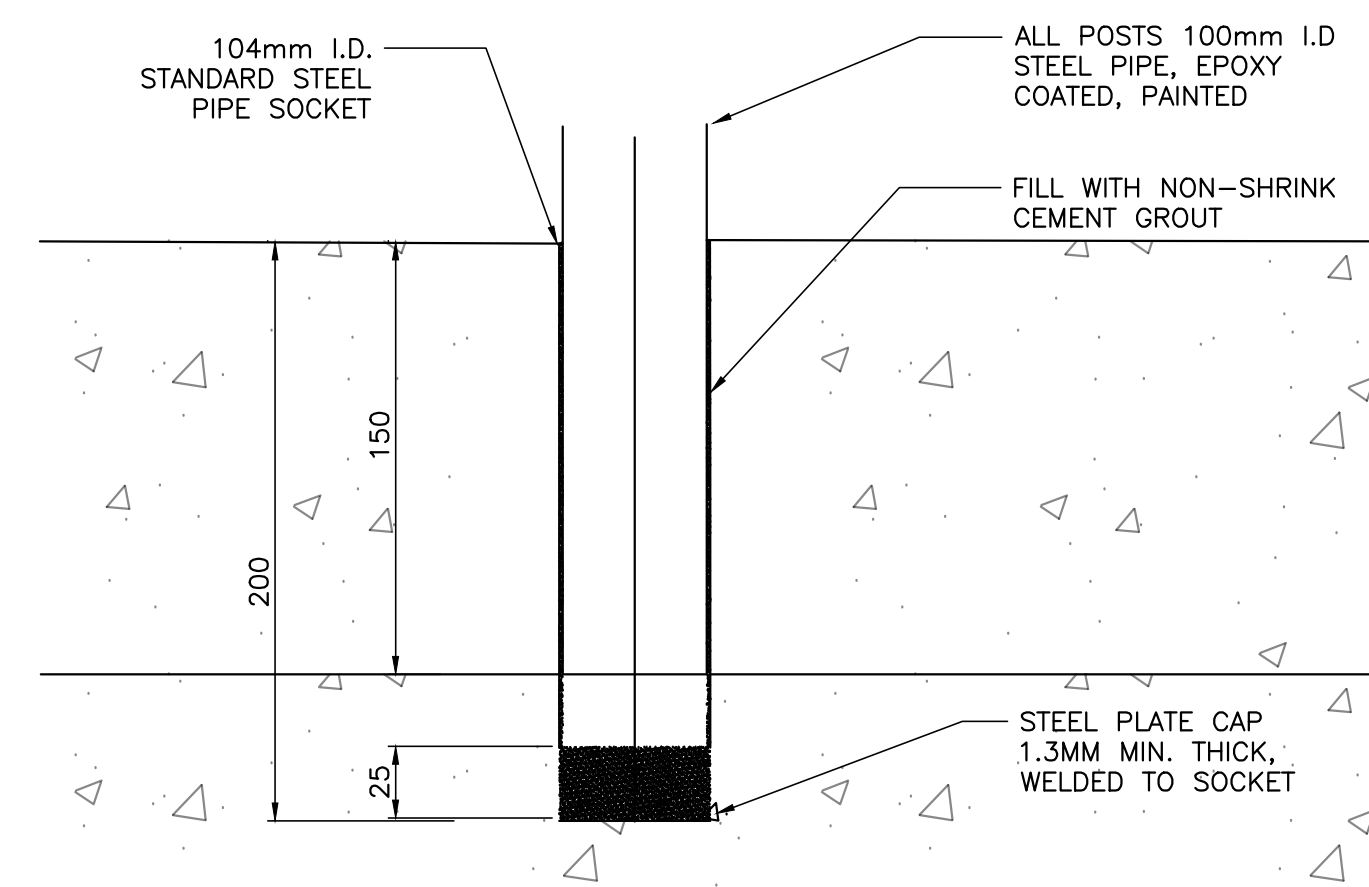
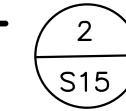
PARAPET NOTES:

1. STEEL PIPE CURB TO BE REINSTALLED FROM STA 83.5 TO 146.5 AND 151.2 TO 179.8
2. NEW STEEL PIPE CURB TO BE INSTALLED FROM STA 179.8 TO 326



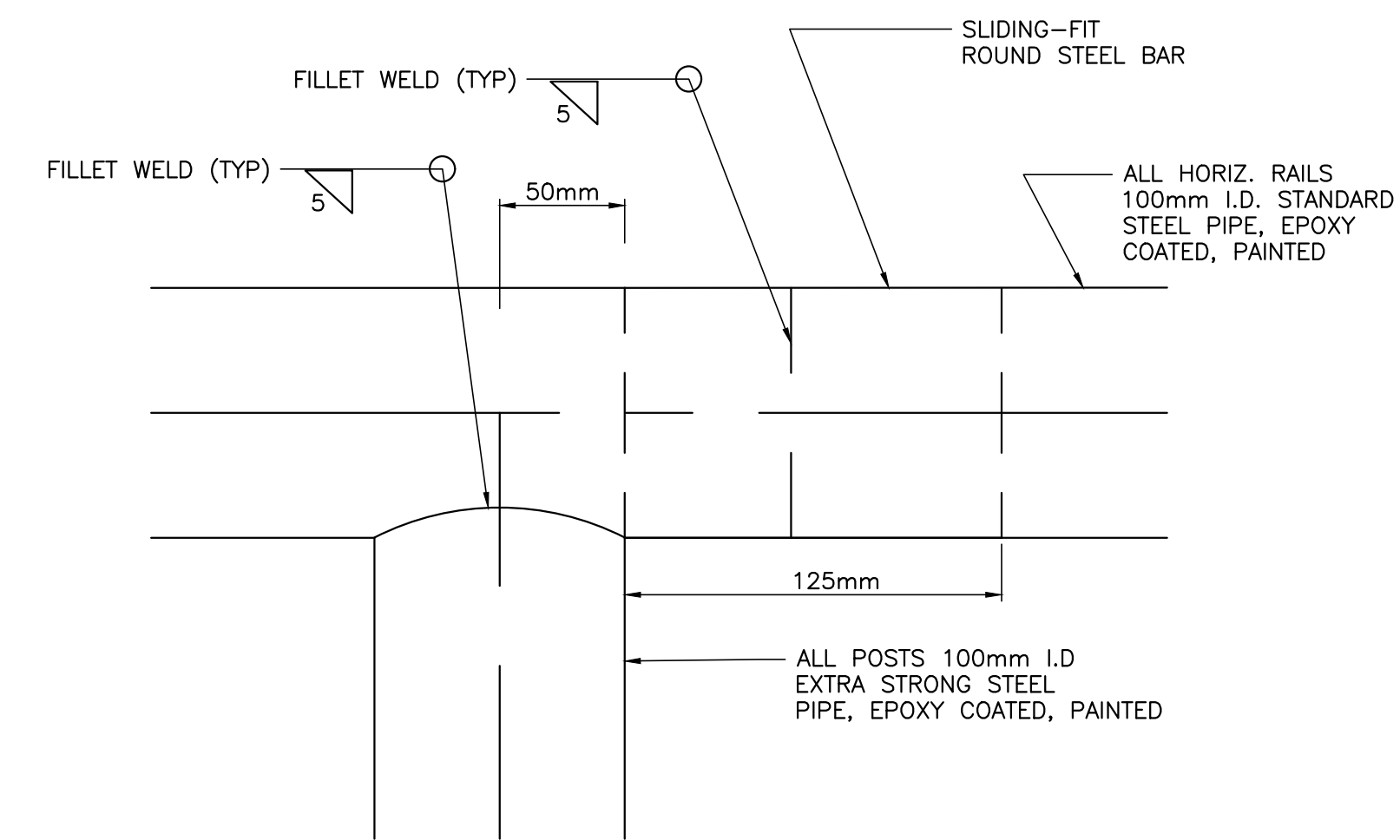
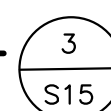
TYPICAL PLAN VIEW PARAPET AT STA. 0+080 TO STA. 0+325.1

SCALE: 1:10



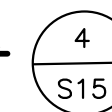
TYPICAL PLAN VIEW PARAPET AT STA. 0+080 TO STA. 0+325.1

SCALE: 1:5



TYPICAL PLAN VIEW PARAPET AT STA. 0+080 TO STA. 0+325.1

SCALE: 1:2.5



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| 1 | PRELIMINARY DESIGN | 2016-12-01 |

| | |
|-----------------|--------|
| SCALE: | CLASS: |
| AS NOTED | |

PROJECT:
WEST PIER REHABILITATION

DESCRIPTION:
**STEEL PIPE CURB DETAIL
 STA. 0+080 TO 0+325.1**

| | |
|-------------|---------------|
| DRAWN: | APPROVED: |
| S.D. | R.I.M. |

| | |
|-----------------|-------|
| DATE: | DATE: |
| MAR 2017 | |

LOCATION:
**RONDEAU (ERIEAU) HARBOUR
 ONTARIO**

| | |
|--------------|---------------|
| DRAWING NO.: | LOCATOR CODE: |
| 15 | 4797 |

