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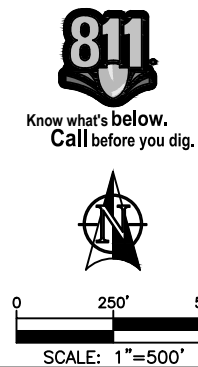
NEW AERIAL	=	0 FT.
OVERLASH	=	0 FT.
NEW UNDERGROUND	=	1,138 FT.
EXISTING UNDERGROUND	=	0 FT.
RISERS	=	0 FT.
BRIDGE ATTACHMENT	=	3,854 FT.
TOTAL FOOTAGE	=	5,092 FT.

**ZAYO CONTACT:**  
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BRYSON BAILY  
MGC TECHNICAL CONSULTING, INC.  
6244 185TH AVE NE  
REDMOND, WA 98052  
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BRYSON@MGCTECHNICAL.COM

1. COVER SHEET / SITE LOCATION
2. LEGEND
3. GENERAL NOTES
- 4.-17. PLAN VIEWS A-N
18. BRIDGE AS BUILT
19. CROSS SECTIONS
20. CROSS SECTIONS & ATTACHMENT DETAILS
21. ATTACHMENT DETAILS
22. MATERIAL SPECS
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PROPOSED PLACE (1) 8" BALLISTIC  
FIBERGLASS CONDUIT ON SOUTH SIDE OF  
BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5  
INNERDUCT IN NEW 8" CONDUIT. PULL FIBER  
CABLE THROUGH.



3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER:	JOSEPH KLEINSASSER
ENGINEERING FIRM:	MGC TECHNICAL CONSULTING INC.

PROJECT NUMBER:

**LOCATION:** 3155 SW MOODY AVE  
PORTLAND OR, 97202

**DRAWING NAME:** ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
--- ISLAND BRIDGE - PLANS.dwg

**CONFIDENTIAL/PROPRIETARY**

SHEET: 1 OF 29

LEGEND

LINETYPES

	AERIAL FIBER - EXISTING
	AERIAL FIBER - ATTACH
	AERIAL FIBER - OVERLASH
	STRAND - EXISTING
	STRAND - PROPOSED
	CONDUIT - EXISTING
	CONDUIT - PROPOSED
	INNERDUCT - EXISTING
	INNERDUCT - PROPOSED
	GAS
	WATER
	TELEPHONE
	FIBER OPTIC
	ELECTRIC
	SANITARY SEWER (SEW)
	STORM DRAIN
	CABLE TV
	STEAM
	OIL
	UNKNOWN UTILITY
	FENCE
	RIGHT OF WAY
	EDGE OF PAVEMENT

ABBREVIATIONS

ASW	ASPHALT SIDEWALK
BIP	BLACK IRON PIPE
BSP	BLACK STEEL PIPE
CSW	CONCRETE SIDEWALK
ELECT.	ELECTRIC
EOP	EDGE OF PAVEMENT
EOTW	EDGE OF TRAVEL WAY
FOC	FACE OF CURB
F/O	FIBER OPTIC
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
JB	JUNCTION BOX
MH	MANHOLE
MP	MILE POST
O/S	OFFSET
PR	POWER RISER
PVC	POLY VINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL CONDUIT
ROW	RIGHT OF WAY
SEW	SANITARY SEWER
SD	STORM DRAIN
STA.	STATION
STM	STEAM
TEL	TELECOM

SYMBOLS

	RISER - EXISTING		TRANSMISSION/DISTRIBUTION POLE
	RISER - PROPOSED		TRANSMISSION POLE
	CATCH BASIN/INLET (RECTANGULAR)		DISTRIBUTION POLE
	CATCH BASIN/INLET (ROUND)		GROUND/BOND
	FIRE HYDRANT		AERIAL STORAGE - EXISTING
	WATER/GAS VALVE		AERIAL STORAGE - PROPOSED
	LIGHT POST		VAULT/BUILDING STORAGE - EXISTING
	STREET LIGHT		VAULT/BUILDING STORAGE - PROPOSED
	TRAFFIC LIGHT ARM		POLE ANCHOR/DOWN GUY - EXISTING
	TREE		POLE ANCHOR/DOWN GUY - PROPOSED
	CULVERT		DOWN GUY TO EXISTING ANCHOR - PROPOSED
	WING WALL		SPLICE POINT - EXISTING
	BRIDGE		SPLICE POINT - PROPOSED
	STREET SIGN		TERMINATION - EXISTING
	ADA RAMP		TERMINATION - PROPOSED
	UTILITY POLE - EXISTING		PULLBOX - EXISTING
	UTILITY POLE - PROPOSED		PULLBOX - PROPOSED
	TRAFFIC RATED VAULT - EXISTING (SIZE AND UTILITY TYPE MAY VARY)		CONSTRUCTION NOTE / RESTORATION CALLOUT
	TRAFFIC RATED VAULT - PROPOSED (SIZE MAY VARY)		PHOTO-MARKER
	HANDHOLE - EXISTING (SIZE AND UTILITY TYPE MAY VARY)		NORTH ARROW
	HANDHOLE - PROPOSED (SIZE MAY VARY)		
	PEDESTAL - EXISTING (SIZE AND UTILITY TYPE MAY VARY)		
	PEDESTAL - PROPOSED (SIZE MAY VARY)		
	WET UTILITY MANHOLE - EXISTING (SIZE AND UTILITY TYPE MAY VARY)		
	BORE PIT - PROPOSED (SIZE MAY VARY)		
	UTILITY POT HOLE		

INFORMATION TABLES

POLE NUMBER		#	UTILITY POLE INFORMATION TABLE (NUMBER OF ATTACHMENTS MAY VARY)
EXISTING UTILITY		0'-0"	
PROPOSED ATTACH		0'-0"	
#F	IN:		SEQUENTIAL IN/OUT CALLOUT
	OUT:		
#F	IN:		SEQUENTIAL IN/TAIL CALLOUT
	TAIL:		
#F	TAIL:		SEQUENTIAL TAIL/OUT CALLOUT
	OUT:		

HATCH PATTERNS

	CONCRETE SIDEWALK
	GRASS/VEGETATION
	GRAVEL
	WATER



3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg				
CONFIDENTIAL/PROPRIETARY				
SHEET: 2 OF 29				

# GENERAL NOTES

**GENERAL NOTES:**

The locations of utilities shown on these drawing are only approximate. MGC TECHNICAL CONSULTING, INC. hereby disclaims any responsibility to third parties for the accuracy of this information. Persons working in the area covered by this drawing must contact the statewide Call-Before-You-Dig System to ascertain the location of underground utilities prior to performing any excavation.

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF UTILITY IMPROVEMENTS SHALL MEET OR EXCEED SITE WORK STANDARDS AND THE STANDARDS AND SPECIFICATIONS SET FORTH IN THE ODOT REGULATIONS AND APPLICABLE STATE AND FEDERAL REGULATIONS. WHERE THERE IS CONFLICT BETWEEN THESE PLANS AND THE SPECIFICATIONS, OR ANY APPLICABLE STANDARDS, THE HIGHER QUALITY STANDARD SHALL APPLY. ALL WORK WITHIN PUBLIC R.O.W. OR EASEMENTS MAY REQUIRE INSPECTED AND APPROVED BY THE ODOT INSPECTOR. INSPECTION SERVICES AND CONSTRUCTION CERTIFICATION TO BE PROVIDED BY DESIGNEE OF PROJECT SPONSOR/OWNER.
2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY PERTINENT LOCATIONS AND ELEVATIONS, ESPECIALLY AT THE CONNECTION POINTS AND AT POTENTIAL UTILITY CONFLICTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL NOTIFY THE ODOT INSPECTOR AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITY OR CONSTRUCTION ON ANY AND ALL PUBLIC IMPROVEMENTS IF REQUIRED.
4. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE ODOT AND ALL UTILITY COMPANIES WITH REGARD TO RELOCATIONS OR ADJUSTMENTS OF EXISTING UTILITIES DURING CONSTRUCTION, TO ASSURE THAT THE WORK IS ACCOMPLISHED IN A TIMELY FASHION, AND WITH A MINIMUM DISRUPTION OF SERVICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PARTIES AFFECTED BY ANY DISRUPTION OF ANY UTILITY SERVICE.
5. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND ONE (1) COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB ON-SITE AT ALL TIMES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY INCLUDING, BUT NOT LIMITED TO: EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY.
7. IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED BY THE CONTRACTOR, HIS SUBCONTRACTORS, OR OTHER AFFECTED PARTIES WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
8. ALL REFERENCES TO ANY PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE.
9. FOR WORK AFFECTING PUBLIC ROADWAYS OR IF REQUIRED BY THE ODOT, THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL AND PHASING PLAN IN ACCORDANCE WITH M.U.T.C.D. FOR APPROVAL. PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN OR AFFECTING THE RIGHT-OF-WAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY AND ALL TRAFFIC CONTROL DEVICES AS MAY BE REQUIRED BY SAID PLANS. PRIOR TO INSTALLATION A PRECONSTRUCTION CONFERENCE SHALL BE HELD WITH ODOT.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE INTENDED IMPROVEMENTS SHOWN ON THESE DRAWINGS OR DESIGNATED TO BE PROVIDED, INSTALLED, CONSTRUCTED, REMOVED OR RELOCATED UNLESS SPECIFICALLY NOTED OTHERWISE.
11. PER AGENCY STANDARDS THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADWAYS FREE AND CLEAR OF ALL CONSTRUCTION DEBRIS AND DIRT TRACKED FROM THE SITE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING RECORD INFORMATION ON A SET OF RECORD DRAWINGS KEPT AT THE CONSTRUCTION SITE AND AVAILABLE TO THE ODOT INSPECTOR AT ALL TIMES.
13. DIMENSIONS FOR LAYOUT AND CONSTRUCTION ARE NOT TO BE SCALED FROM ANY DRAWING. FOR ADDITIONAL INFORMATION CONTACT THE ENGINEER FOR CLARIFICATION AND NOTE ON THE RECORD DRAWINGS.
14. ALL EROSION AND SEDIMENT CONTROL (E.S.C.) MEASURES SHALL BE INSTALLED AT THE LIMITS OF CONSTRUCTION PRIOR TO GROUND DISTURBING ACTIVITY. ALL E.S.C. MEASURES SHALL BE MAINTAINED IN GOOD REPAIR BY THE CONTRACTOR UNTIL SUCH TIME AS THE ENTIRE DISTURBED AREAS ARE STABILIZED WITH HARD SURFACE OR LANDSCAPING.
15. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY IS SUBJECT TO THE JURISDICTION OF THE ODOT ENGINEERING DEPARTMENT STANDARD DETAILS AND SPECIFICATIONS.
16. ALL CONSTRUCTION OPERATIONS, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTH MOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED EQUIPMENT SHALL GENERALLY BE LIMITED TO THE TIME PERIOD APPROVED BY THE ODOT.



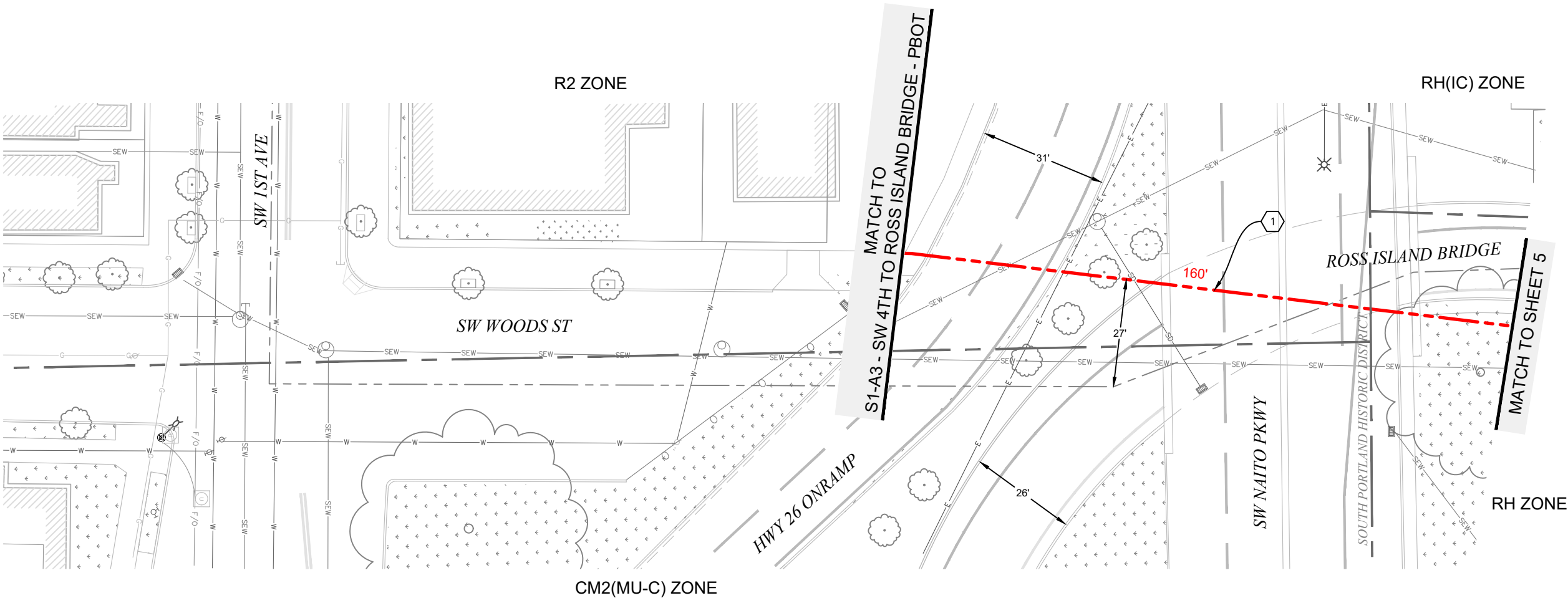
Know what's below.  
Call before you dig.

3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
<div><div><b>zayo</b> GROUP</div><div><b>MGC</b> TECHNICAL CONSULTING INC.</div></div>				
ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg				
CONFIDENTIAL/PROPRIETARY				SHEET: 3 OF 29

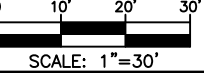


CONSTRUCTION NOTES

- 1
- PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5  
INNERDUCT. PULL FIBER CABLES THROUGH. REPAIR  
SURFACE PER LOCAL JURISDICTION STANDARDS.  
CONTRACTOR TO POTHOLE ALL UTILITIES PRIOR TO  
CONSTRUCTION.



PLAN VIEW A

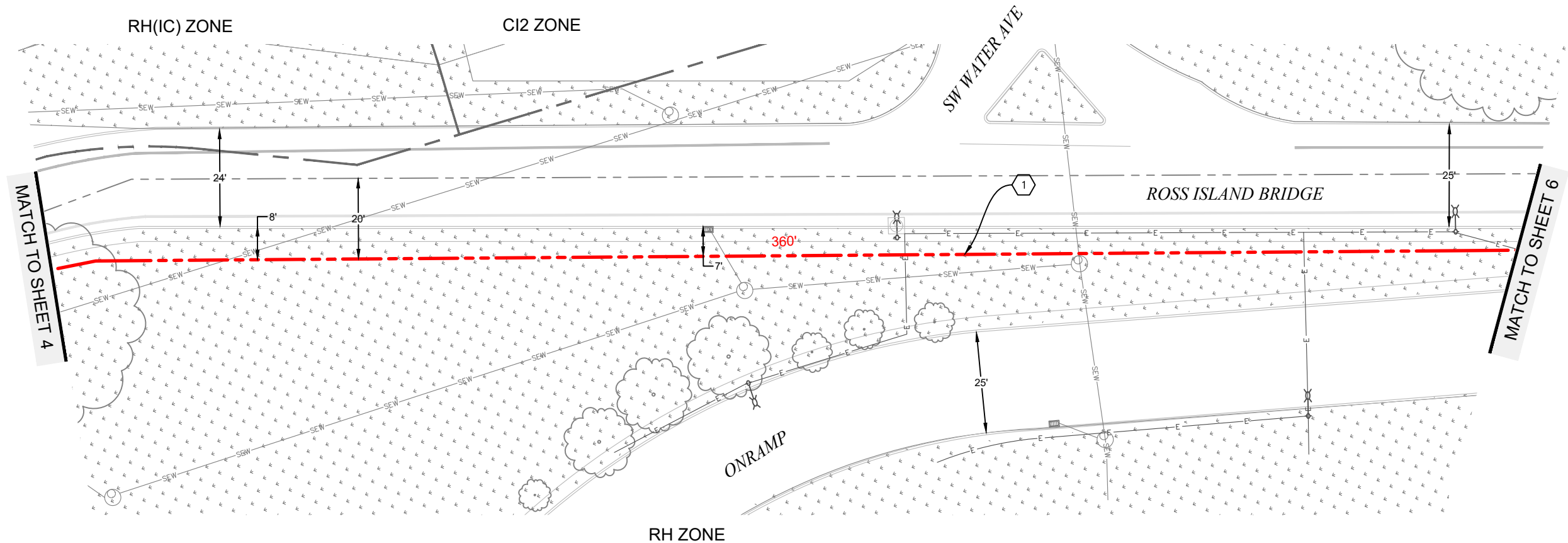


3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
<div><div>ZAYO GROUP</div><div>MGC TECHNICAL CONSULTING INC.</div></div>				
ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg				
CONFIDENTIAL/PROPRIETARY				



CONSTRUCTION NOTES

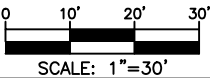
- 1
- PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5  
INNERDUCT. PULL FIBER CABLES THROUGH. REPAIR  
SURFACE PER LOCAL JURISDICTION STANDARDS.  
CONTRACTOR TO POTHOLE ALL UTILITIES PRIOR TO  
CONSTRUCTION.





PLAN VIEW B



Know what's below.  
Call before you dig.



3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER: JOSEPH KLEINSASSER

ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.

PROJECT NUMBER:

LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202

DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
ISLAND BRIDGE - PLANS.dwg

CONFIDENTIAL/PROPRIETARY

SHEET: 5 OF 29

CONSTRUCTION NOTES

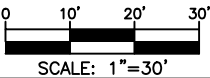
- 1
- PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5  
INNERDUCT. PULL FIBER CABLES THROUGH. REPAIR  
SURFACE PER LOCAL JURISDICTION STANDARDS.  
CONTRACTOR TO POTHOLE ALL UTILITIES PRIOR TO  
CONSTRUCTION.



PLAN VIEW C



Know what's below.  
Call before you dig.



SCALE: 1"=30'

3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT

**zayo**  
GROUP

**MGC**  
TECHNICAL CONSULTING INC.

ZAYO ENGINEER: JOSEPH KLEINSASSER  
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.

PROJECT NUMBER:

LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202

DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
ISLAND BRIDGE - PLANS.dwg

CONFIDENTIAL/PROPRIETARY

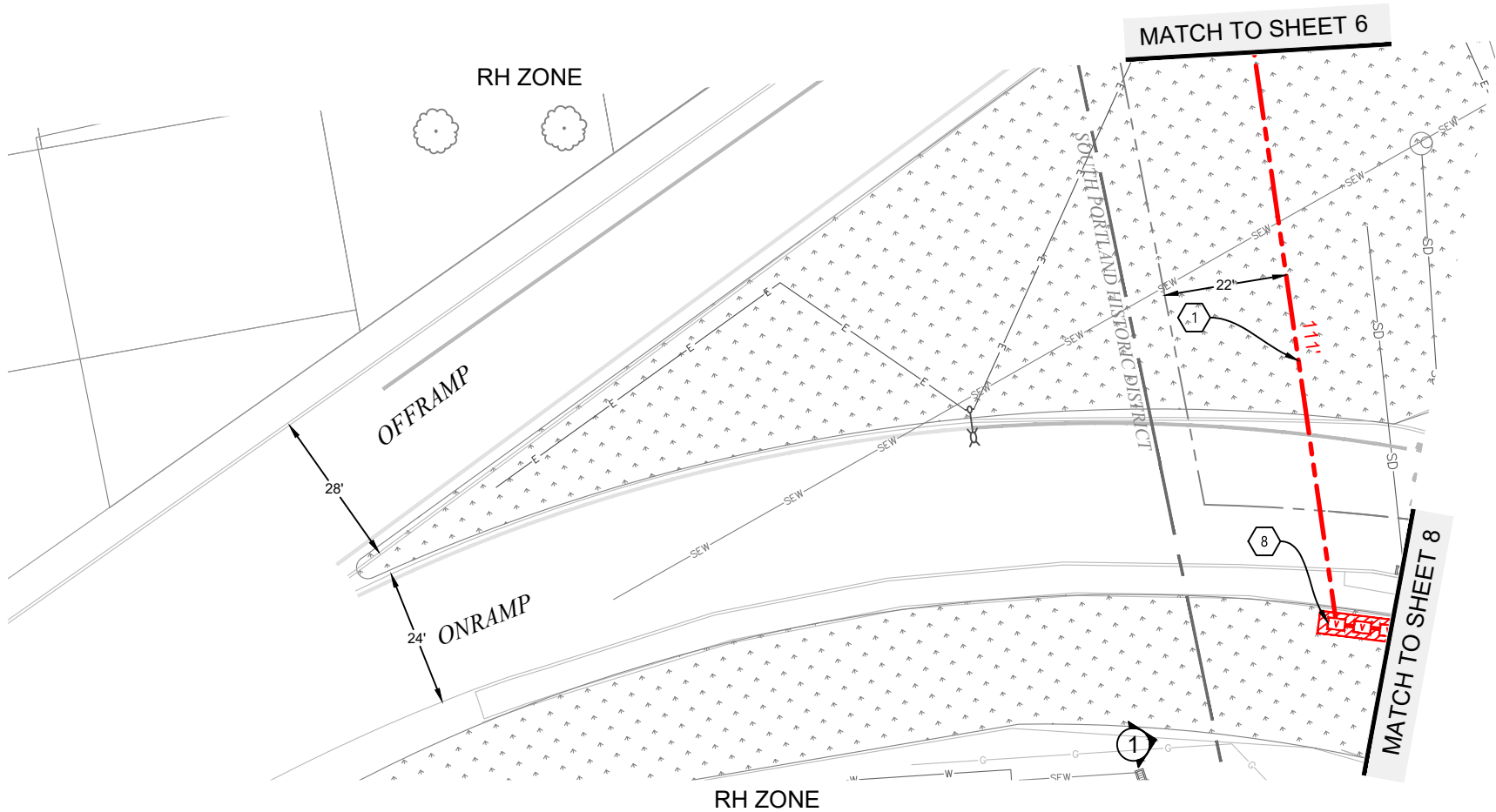
SHEET: 6 OF 29

CONSTRUCTION NOTES

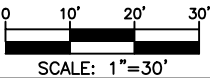
- 1

PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5 INNERDUCT. PULL FIBER CABLES THROUGH. REPAIR SURFACE PER LOCAL JURISDICTION STANDARDS. CONTRACTOR TO POTHOLE ALL UTILITIES PRIOR TO CONSTRUCTION.
- 8

PROPOSED (3) NB2436 VAULTS. PULL FIBER CABLE THROUGH. SEE SHEET 26 FOR DETAILS.



PLAN VIEW D



# SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET #27 FOR SITE PHOTOGRAPHS.

3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT

zayo

GROUP

MGC

TECHNICAL CONSULTING INC.

ZAYO ENGINEER: JOSEPH KLEINSASSER

ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.

PROJECT NUMBER:

LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202

DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
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CONFIDENTIAL/PROPRIETARY



CONSTRUCTION NOTES

- 1

PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5 INNERDUCT. PULL FIBER CABLES THROUGH. REPAIR SURFACE PER LOCAL JURISDICTION STANDARDS. CONTRACTOR TO POT HOLE ALL UTILITIES PRIOR TO CONSTRUCTION.
- 2

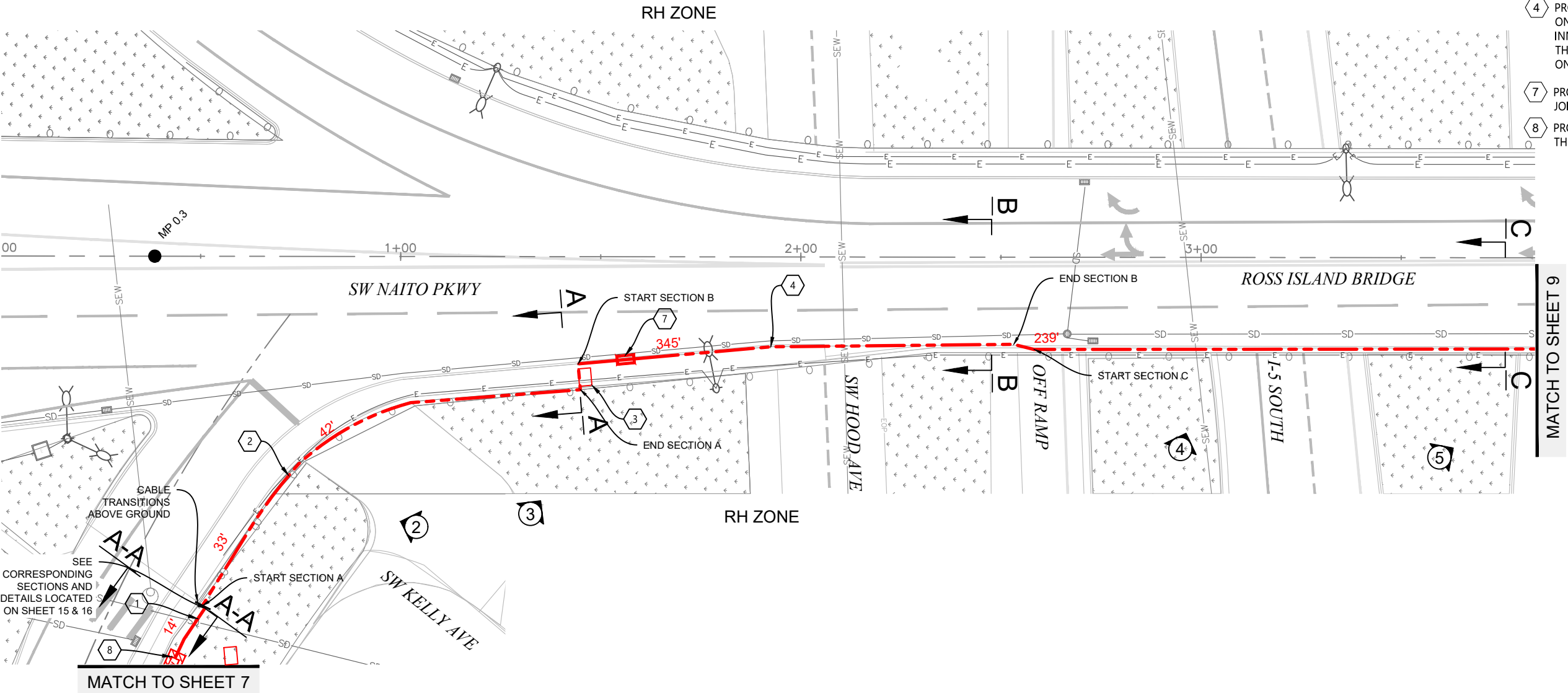
PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SHEET 22 & 23 FOR MOUNTING DETAILS.
- 3

PROPOSED INSTALL (1) 24"x24" J-BOX. PULL FIBER CABLE AS NEEDED. SEE SHEET 26 FOR DETAILS AND SPECIFICATIONS
- 4

PROPOSED HANG (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 7

PROPOSED 8" EXPANSION JOINT. SEE SEE EXPANSION JOINT TYPICAL ON SHEET 23 FOR DETAILS.
- 8

PROPOSED (3) NB2436 VAULTS. PULL FIBER CABLE THROUGH. SEE SHEET 26 FOR DETAILS.



PLAN VIEW E

# SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET #27 FOR SITE PHOTOGRAPHS.



0 10' 20' 30'  
SCALE: 1"=30'

3	4/16/19	JS	CH	AS-BUILT
2	08/03/17	LS	DHN	REVISION # 3
1				ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT

**zayo**  
GROUP

**MGC**  
TECHNICAL CONSULTING INC.

ZAYO ENGINEER: JOSEPH KLEINSASSER

ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.

PROJECT NUMBER:

LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202

DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
ISLAND BRIDGE - PLANS.dwg

CONFIDENTIAL/PROPRIETARY

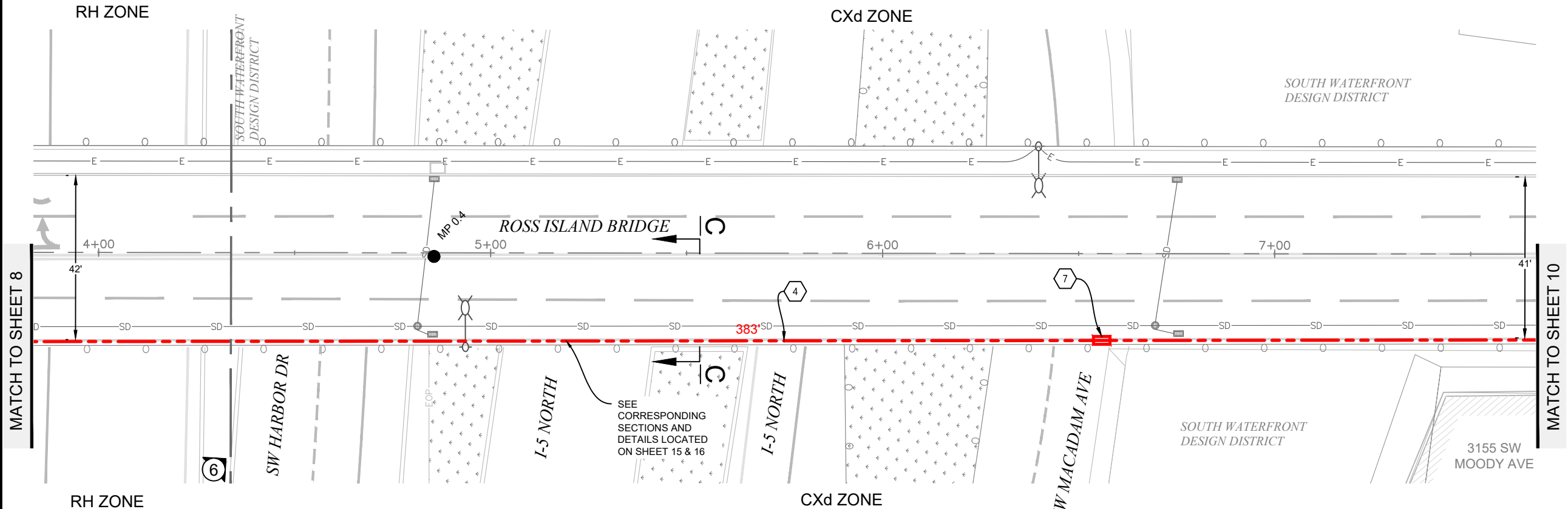
SHEET: 8 OF 29

CONSTRUCTION NOTES

- 4

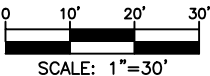
PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 7

PROPOSED 8" EXPANSION JOINT. SEE TYPICAL ON DETAILS AND SPECIFICATIONS ON SHEET 23.



PLAN VIEW F

# SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET #27 FOR SITE PHOTOGRAPHS.

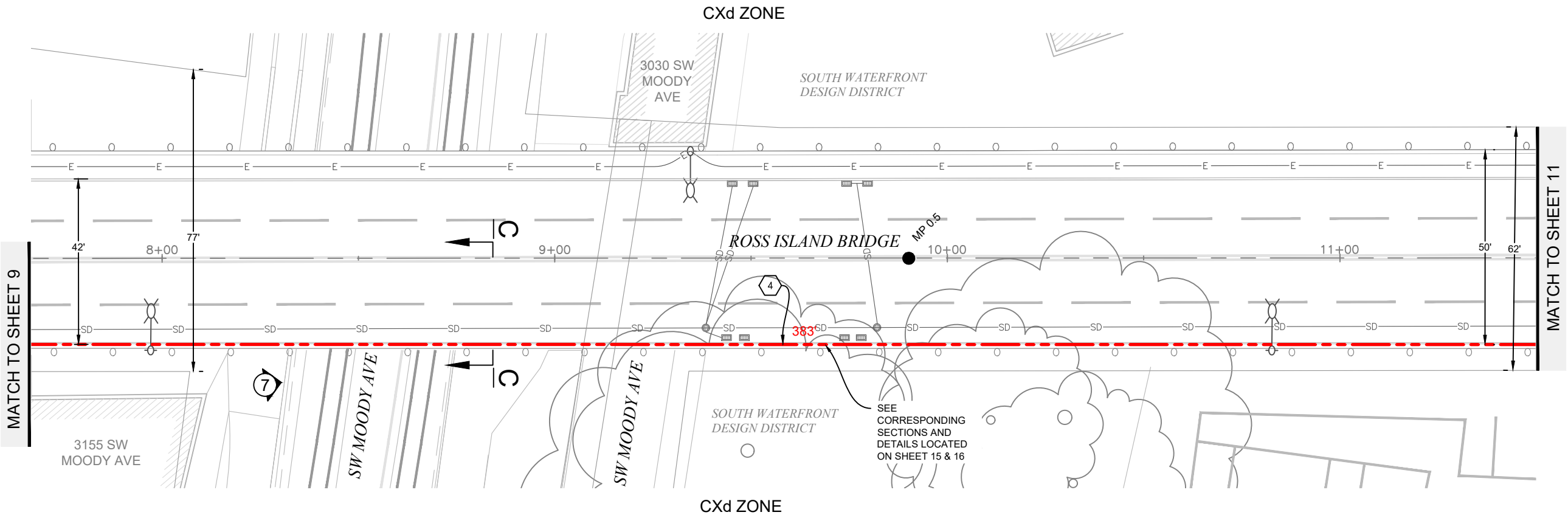


3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT

<b>zayo</b> GROUP	<b>MGC</b> TECHNICAL CONSULTING INC.
ZAYO ENGINEER: JOSEPH KLEINSASSER	
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.	
PROJECT NUMBER:	
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202	
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg	
CONFIDENTIAL/PROPRIETARY	

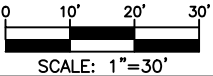
CONSTRUCTION NOTES

4 PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.



PLAN VIEW G

# SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET #27-28 FOR SITE PHOTOGRAPHS.



3				AS-BUILT
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**zayo**  
GROUP

**MGC**  
TECHNICAL CONSULTING INC.

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SHEET: 10 OF 29

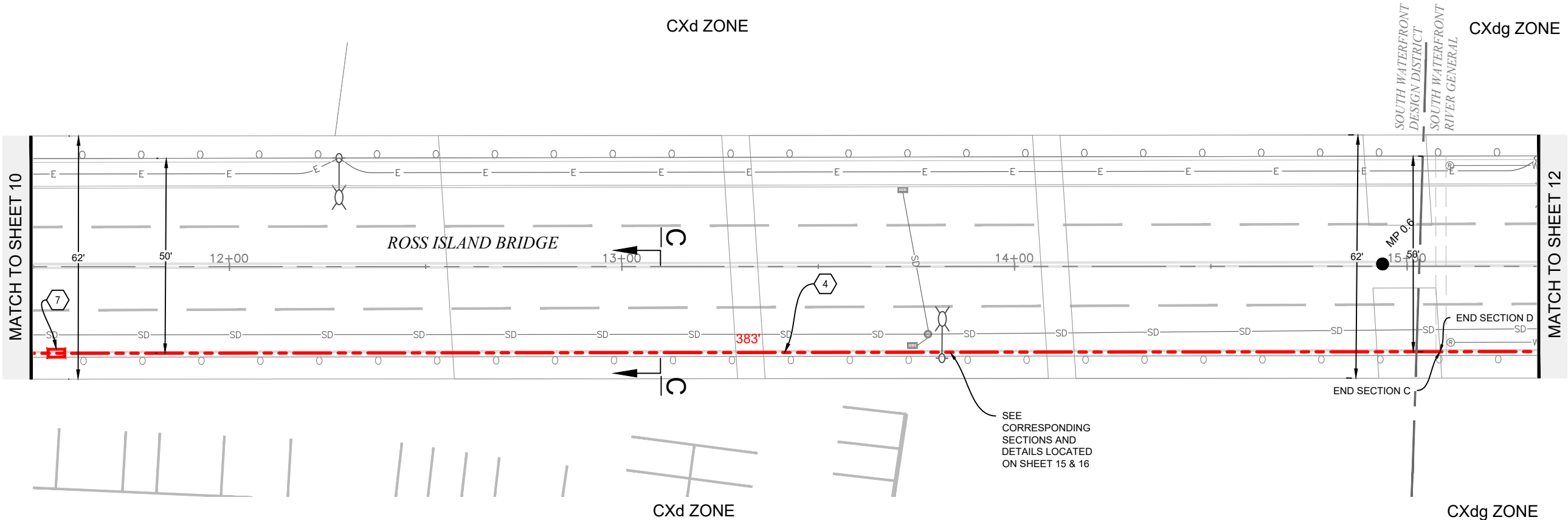


CONSTRUCTION NOTES

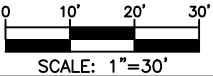
- 4

PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 7

PROPOSED 8" EXPANSION JOINT. SEE TYPICAL ON DETAILS AND SPECIFICATIONS ON SHEET 23.



Know what's below.  
Call before you dig.



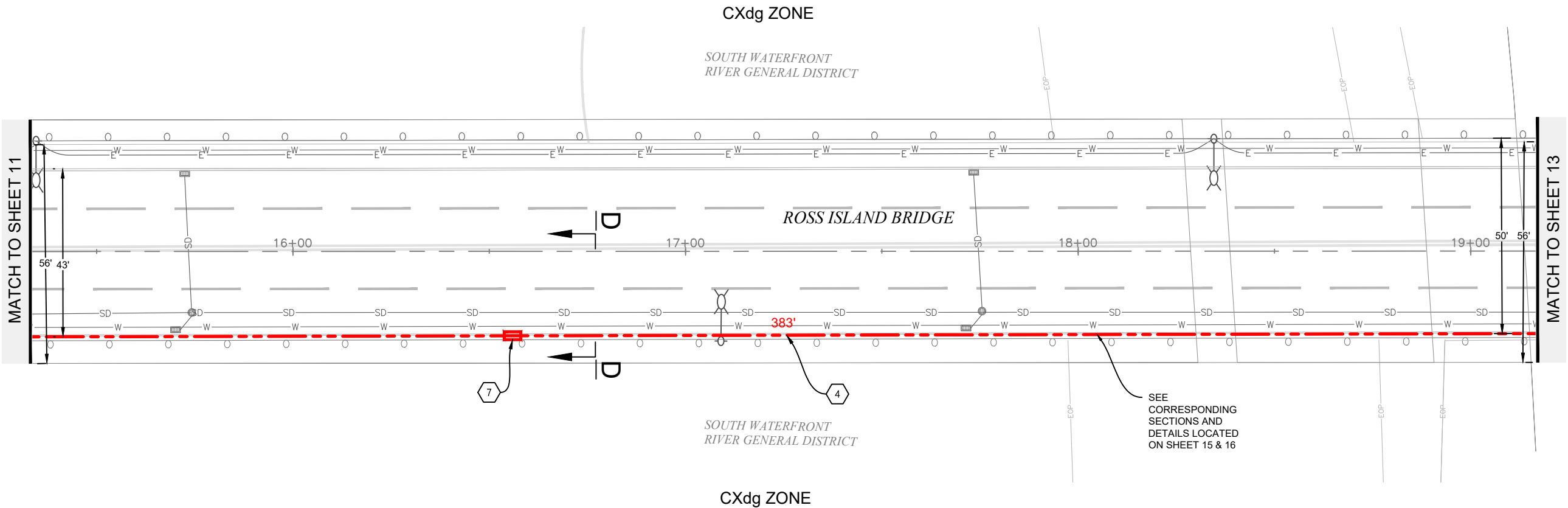
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1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
<div><div><div>zayo</div><div>GROUP</div></div><div><div>MGC</div><div>TECHNICAL CONSULTING INC.</div></div></div>				
ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg				
CONFIDENTIAL/PROPRIETARY				
SHEET: 11 OF 29				

CONSTRUCTION NOTES

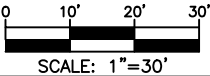
- 4

PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 7

PROPOSED 8" EXPANSION JOINT. SEE TYPICAL ON DETAILS AND SPECIFICATIONS ON SHEET 23.



PLAN VIEW I



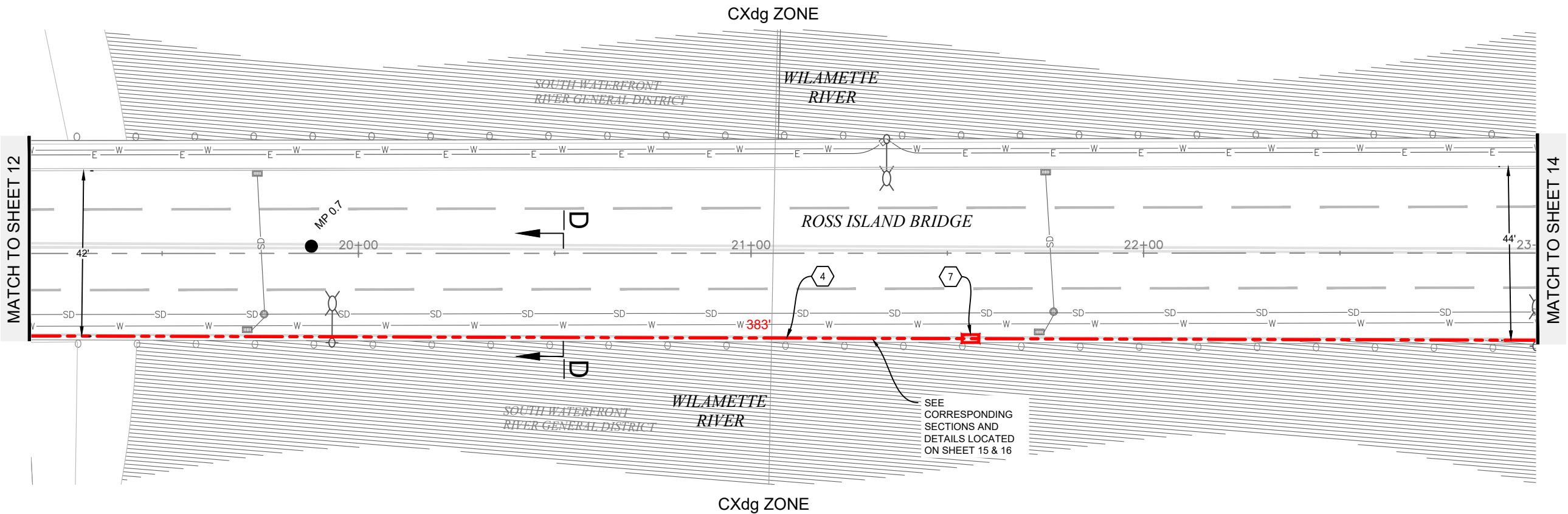
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1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
<div><div><div>zayo</div><div>GROUP</div></div><div><div>MGC</div><div>TECHNICAL CONSULTING INC.</div></div></div>				
ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg				
CONFIDENTIAL/PROPRIETARY				
				SHEET: 12 OF 29

CONSTRUCTION NOTES

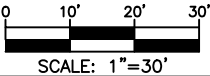
- 4

PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 7

PROPOSED 8" EXPANSION JOINT. SEE TYPICAL ON DETAILS AND SPECIFICATIONS ON SHEET 23.



PLAN VIEW J



3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
<div><div><div><div>zayo</div><div>GROUP</div></div><div><div>MGC</div><div>TECHNICAL CONSULTING INC.</div></div></div><div><div>ZAYO ENGINEER: JOSEPH KLEINSASSER</div><div>ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.</div><div>PROJECT NUMBER:</div><div>LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202</div><div>DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg</div><div>CONFIDENTIAL/PROPRIETARY</div></div></div>				
				SHEET: 13 OF 29

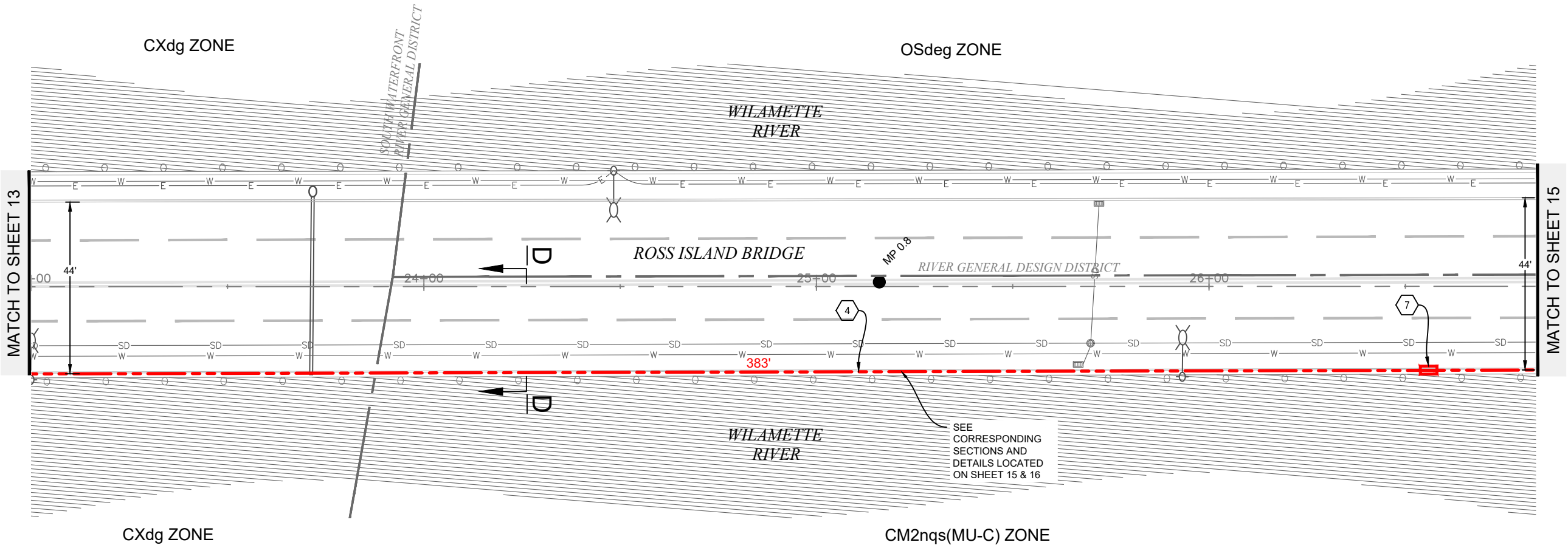


CONSTRUCTION NOTES

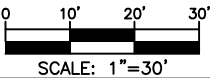
- 4

PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 7

PROPOSED 8" EXPANSION JOINT. SEE TYPICAL ON DETAILS AND SPECIFICATIONS ON SHEET 23.



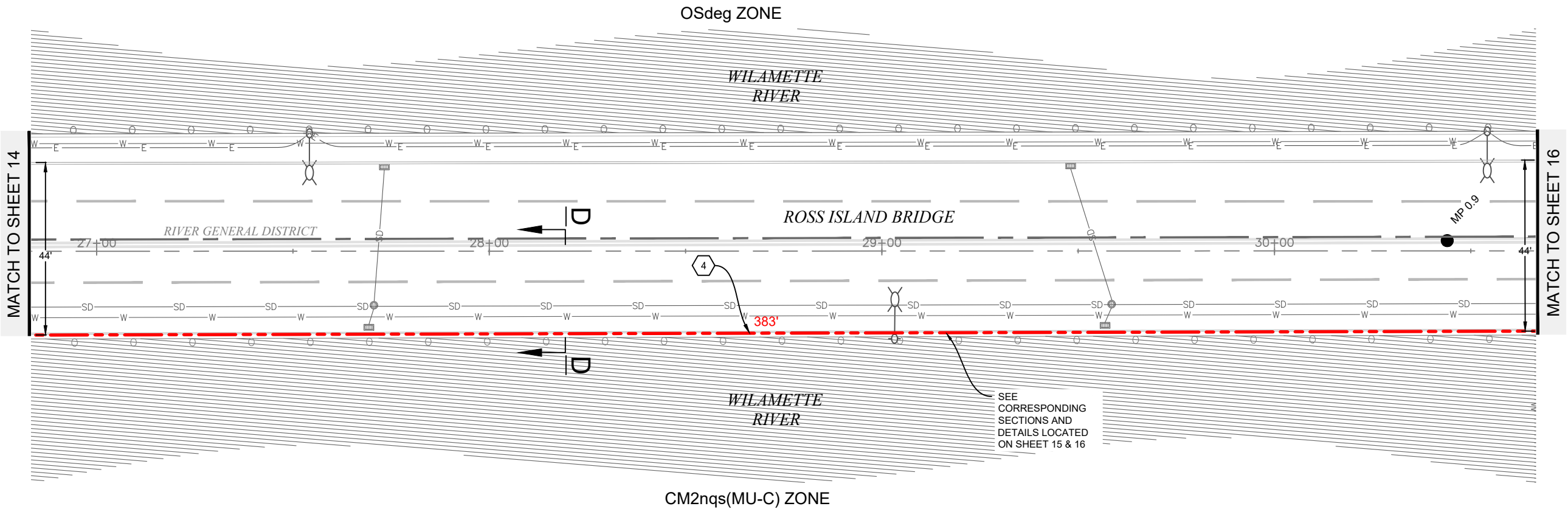
PLAN VIEW K



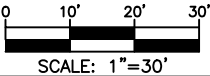
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2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
<div><div><div>zayo</div><div>GROUP</div></div><div><div>MGC</div><div>TECHNICAL CONSULTING INC.</div></div></div>				
ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg				
CONFIDENTIAL/PROPRIETARY				
				SHEET: 14 OF 29

CONSTRUCTION NOTES



- 4 PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.



PLAN VIEW L



3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER: JOSEPH KLEINSASSER

ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.

PROJECT NUMBER:

LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202

DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
ISLAND BRIDGE - PLANS.dwg

CONFIDENTIAL/PROPRIETARY

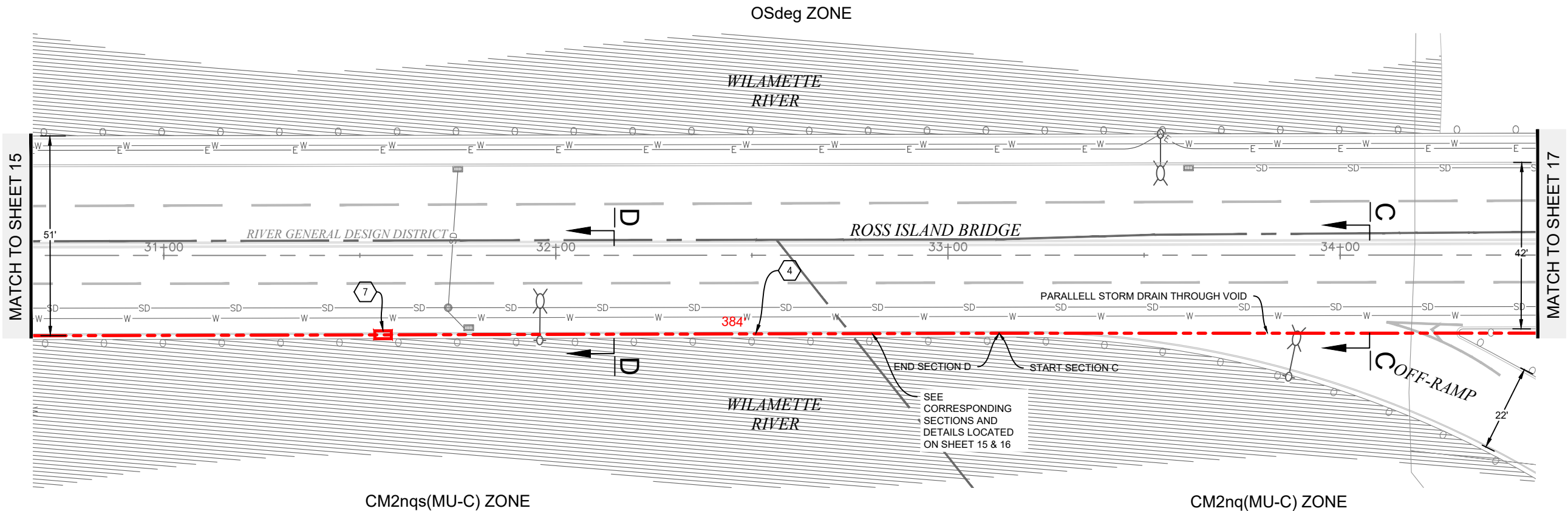
SHEET: 15 OF 29

CONSTRUCTION NOTES

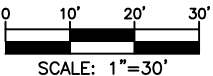
- 4

PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 7

PROPOSED 8" EXPANSION JOINT. SEE TYPICAL ON DETAILS AND SPECIFICATIONS ON SHEET 23.

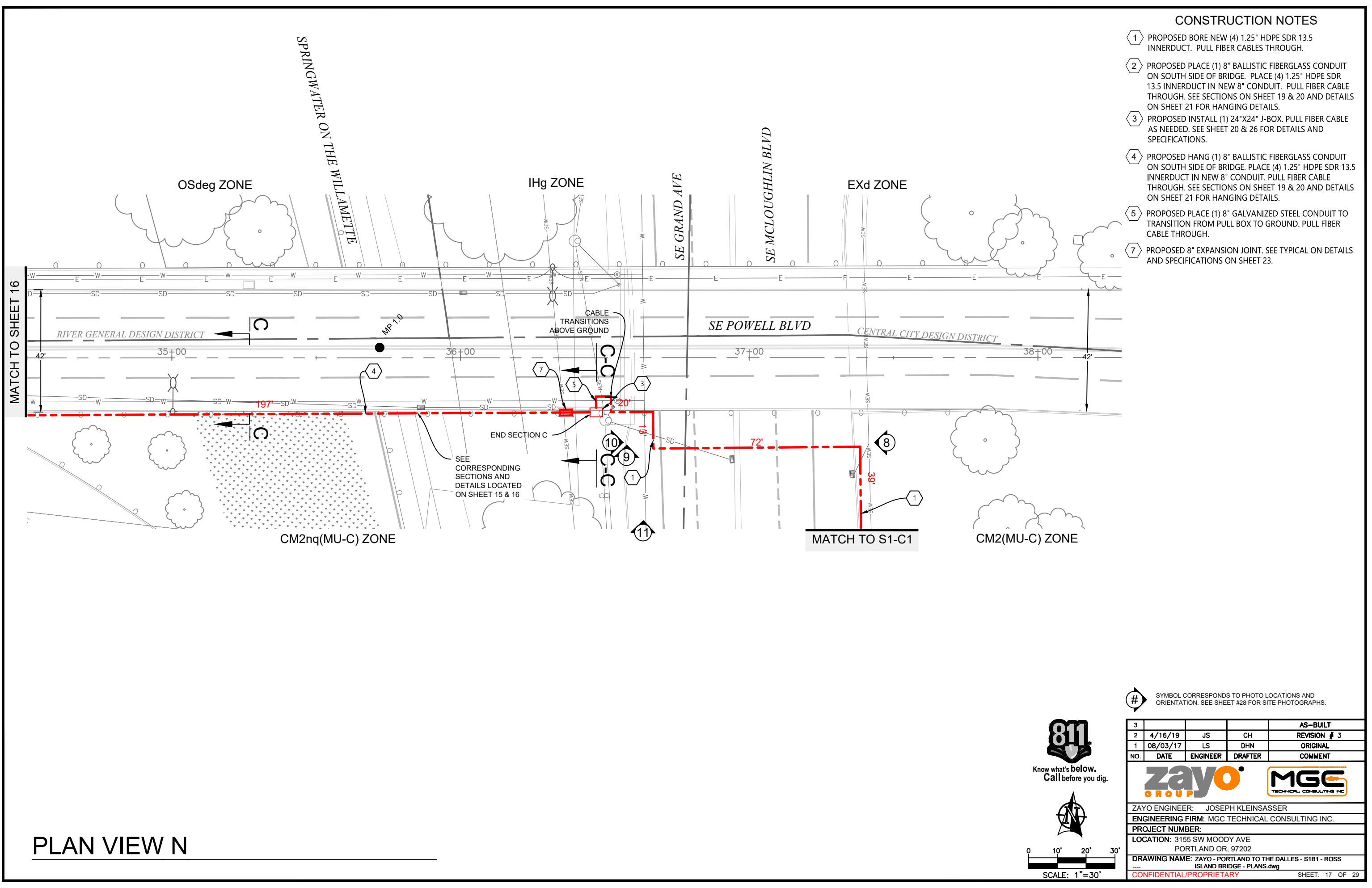


PLAN VIEW M



3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT
<div><div><div>zayo</div><div>GROUP</div></div><div><div>MGC</div><div>TECHNICAL CONSULTING INC.</div></div></div>				
ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg				
CONFIDENTIAL/PROPRIETARY				
				SHEET: 16 OF 29





CONSTRUCTION NOTES

- 1 PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5 INNERDUCT. PULL FIBER CABLES THROUGH.
- 2 PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 3 PROPOSED INSTALL (1) 24"X24" J-BOX. PULL FIBER CABLE AS NEEDED. SEE SHEET 20 & 26 FOR DETAILS AND SPECIFICATIONS.
- 4 PROPOSED HANG (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 5 PROPOSED PLACE (1) 8" GALVANIZED STEEL CONDUIT TO TRANSITION FROM PULL BOX TO GROUND. PULL FIBER CABLE THROUGH.
- 7 PROPOSED 8" EXPANSION JOINT. SEE TYPICAL ON DETAILS AND SPECIFICATIONS ON SHEET 23.

# SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET #28 FOR SITE PHOTOGRAPHS.

3	4/16/19	JS	CH	AS-BUILT
2	08/03/17	LS	DHN	REVISION # 3
1				ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER: JOSEPH KLEINSASSER  
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.  
PROJECT NUMBER:  
LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202  
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
ISLAND BRIDGE - PLANS.dwg  
CONFIDENTIAL/PROPRIETARY  
SHEET: 17 OF 29



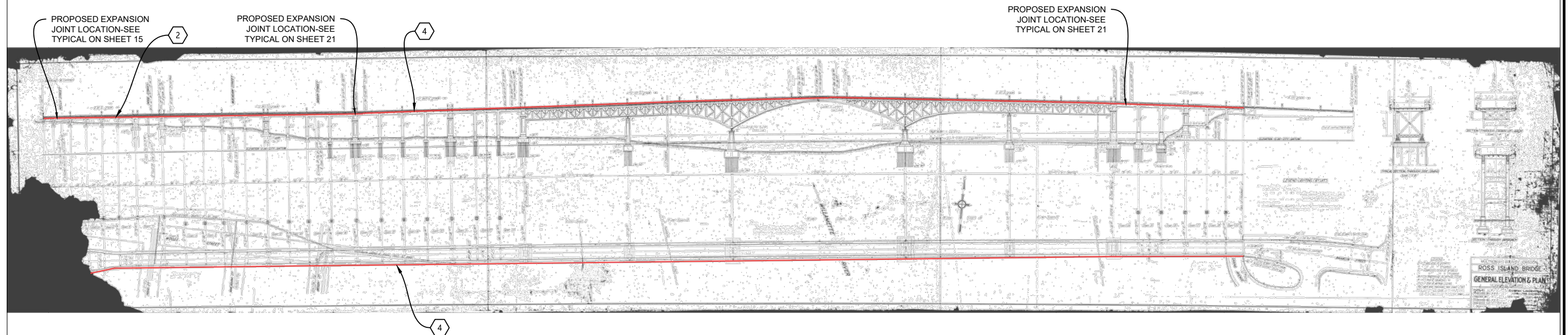
0 10' 20' 30'  
SCALE: 1"=30'

PLAN VIEW N

# ROSS ISLAND BRIDGE PLANS

## CONSTRUCTION NOTES

- 2 PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUIT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 4 PROPOSED HANG (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUIT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 15 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.



NOTES:

1. ALL MOUNTING HARDWARE SHALL BE HOT-DIPPED GALVANIZED. UNLESS OTHERWISE NOTED.
2. WEIGHT OF (1) 4"Ø BALLISTIC FIBERGLASS CONDUIT: 4.20 LBS/FT
3. MAX WEIGHT OF (3) 1 1/4" SDR INNERDUCT: 0.789 LBS/FT
4. WEIGHT OF (1) 144F CABLE : 0.1520 LBS/FT
5. COMBINED WEIGHT : 5.141 LBS/FT

TOTAL PACKAGE WEIGHT - ROSS ISLAND BRIDGE: 5.141 LBS/FT X 3929 FT = 20,198.989 LBS



Know what's **below**.  
**Call** before you dig.

3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER: JOSEPH KLEINSASSER

**ENGINEERING FIRM:** MGC TECHNICAL CONSULTING INC.

PROJECT NUMBER:

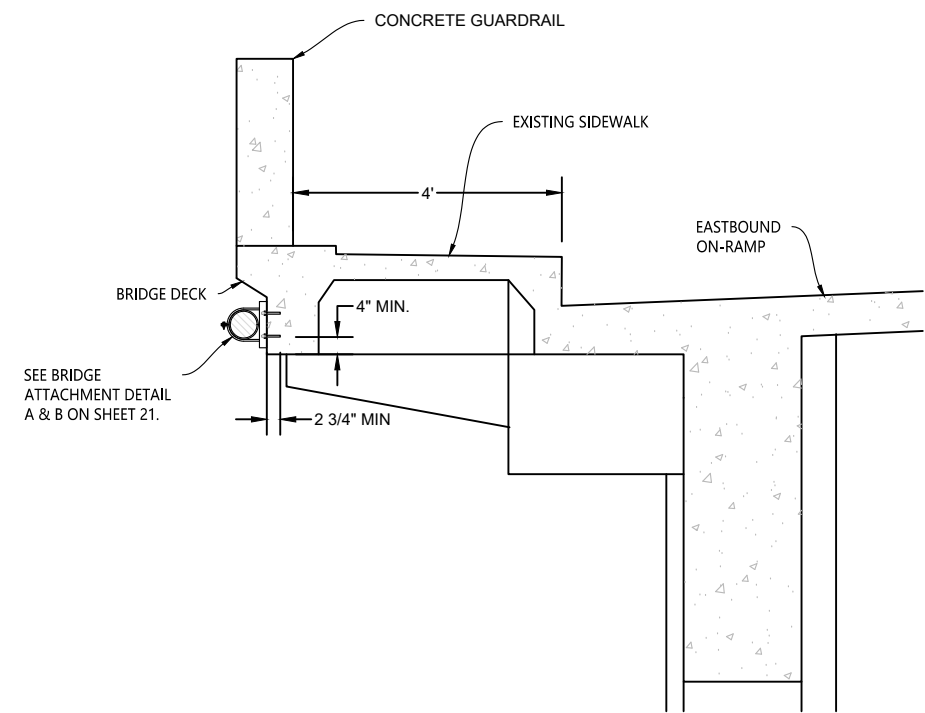
**LOCATION:** 3155 SW MOODY AVE  
PORTLAND OR, 97202

DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
--- ISLAND BRIDGE - PLANS.dwg

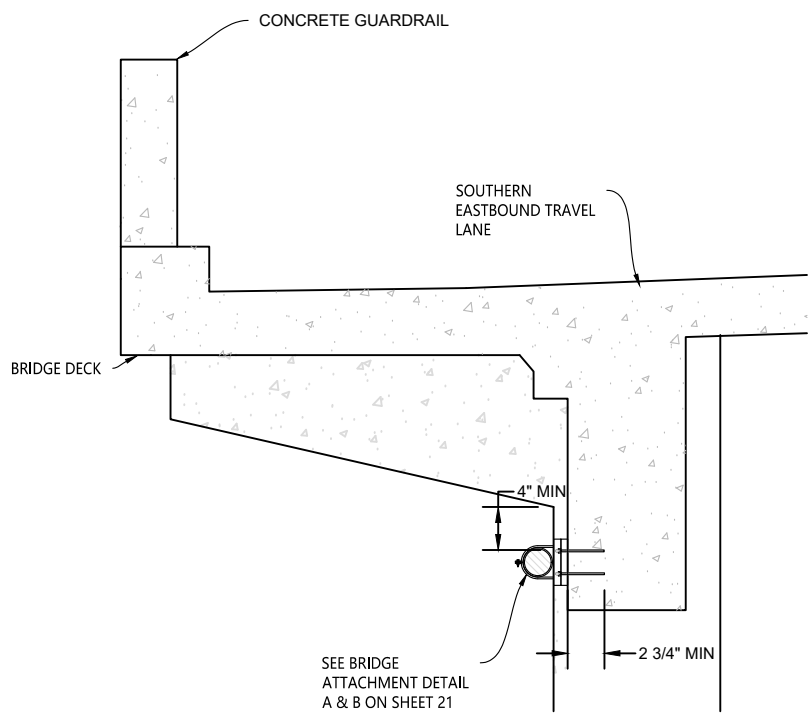
**CONFIDENTIAL/PROPRIETARY**

SHEET: 18 OF 29

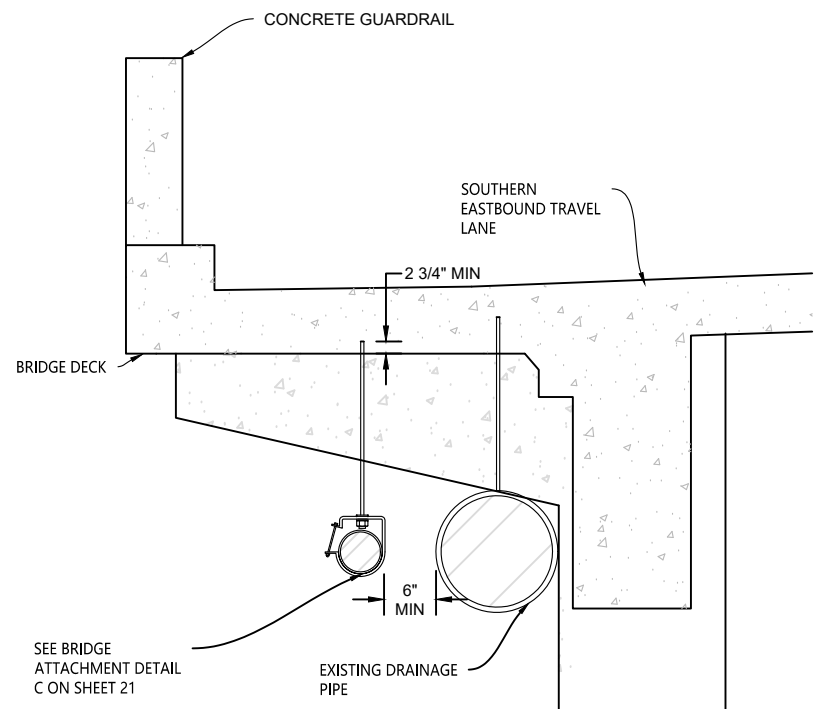
# CROSS SECTIONS



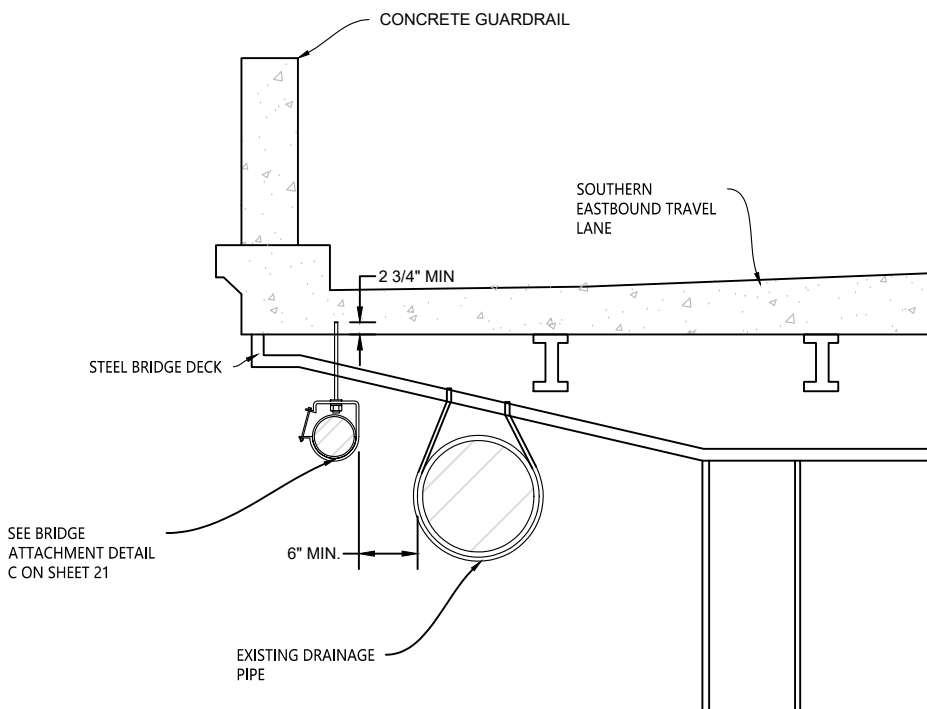
SECTION A - BRIDGE CROSS SECTION DETAIL (FACING WEST)  
SCALE: 1"=3'



SECTION B - BRIDGE CROSS SECTION DETAIL (FACING WEST)  
SCALE: 1"=3'



SECTION C - BRIDGE CROSS SECTION DETAIL (FACING WEST)  
SCALE: 1"=3'



SECTION D - BRIDGE CROSS SECTION DETAIL (FACING WEST)  
SCALE: 1"=3'



Know what's below.  
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3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT

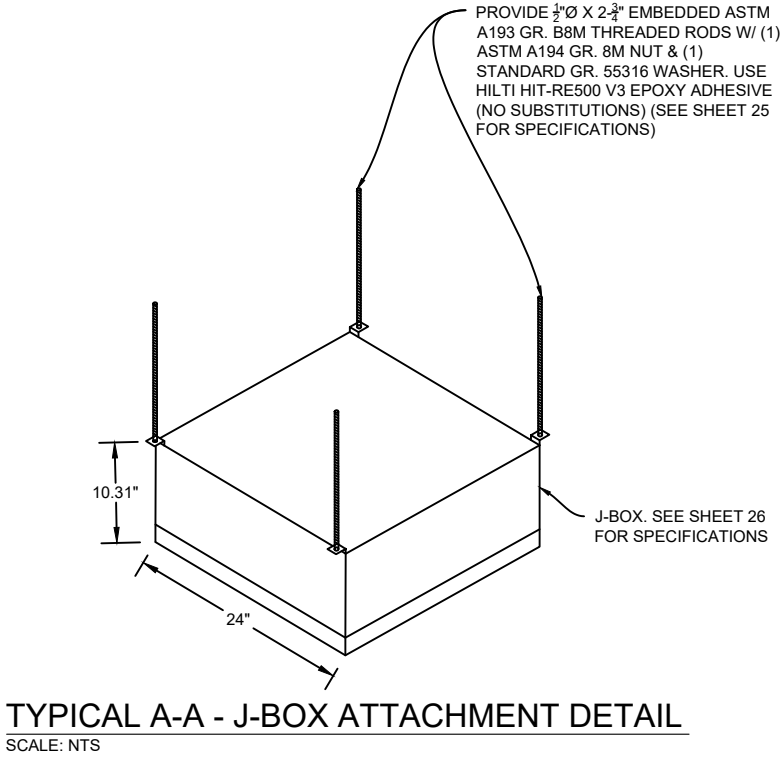
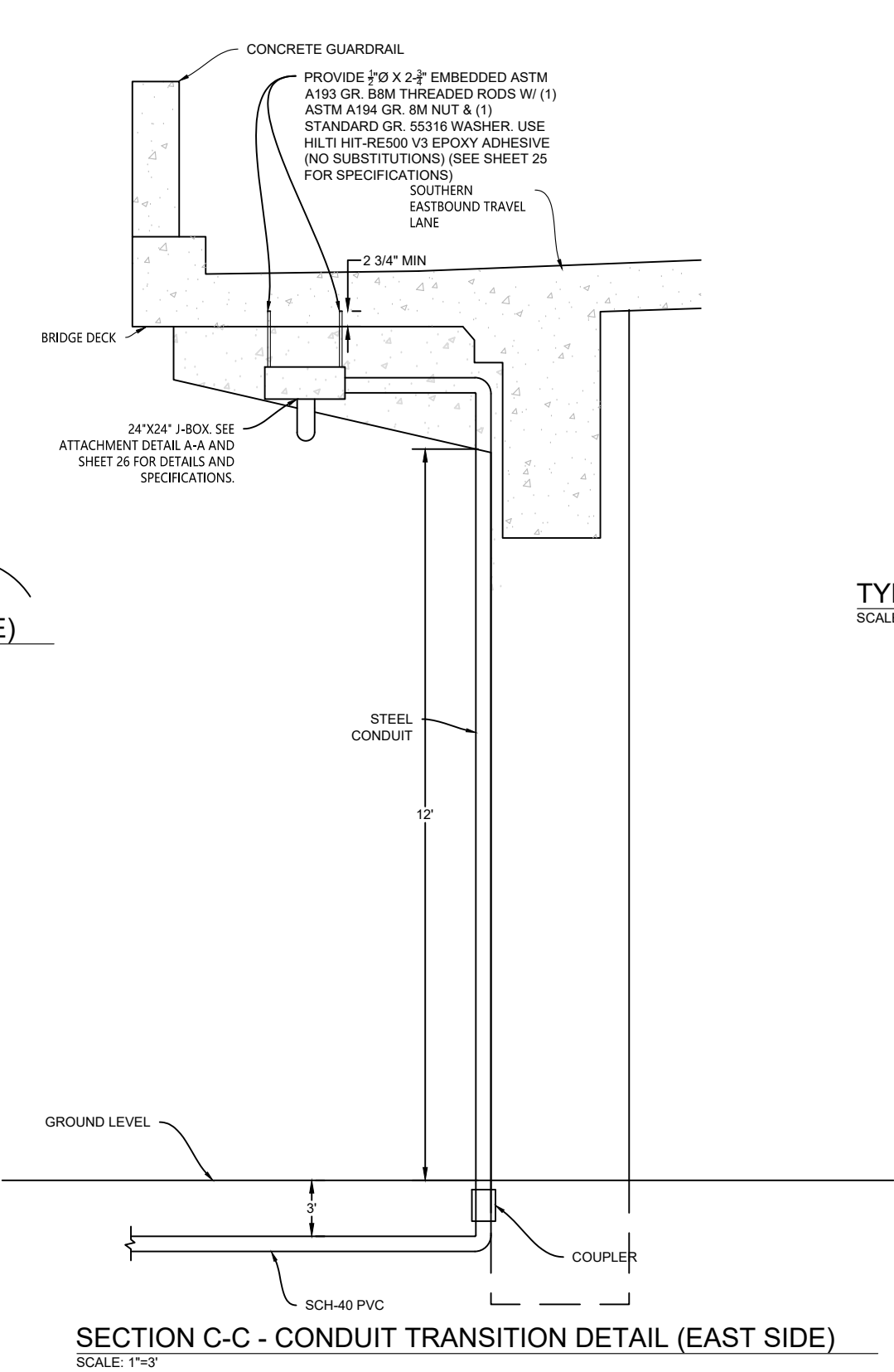
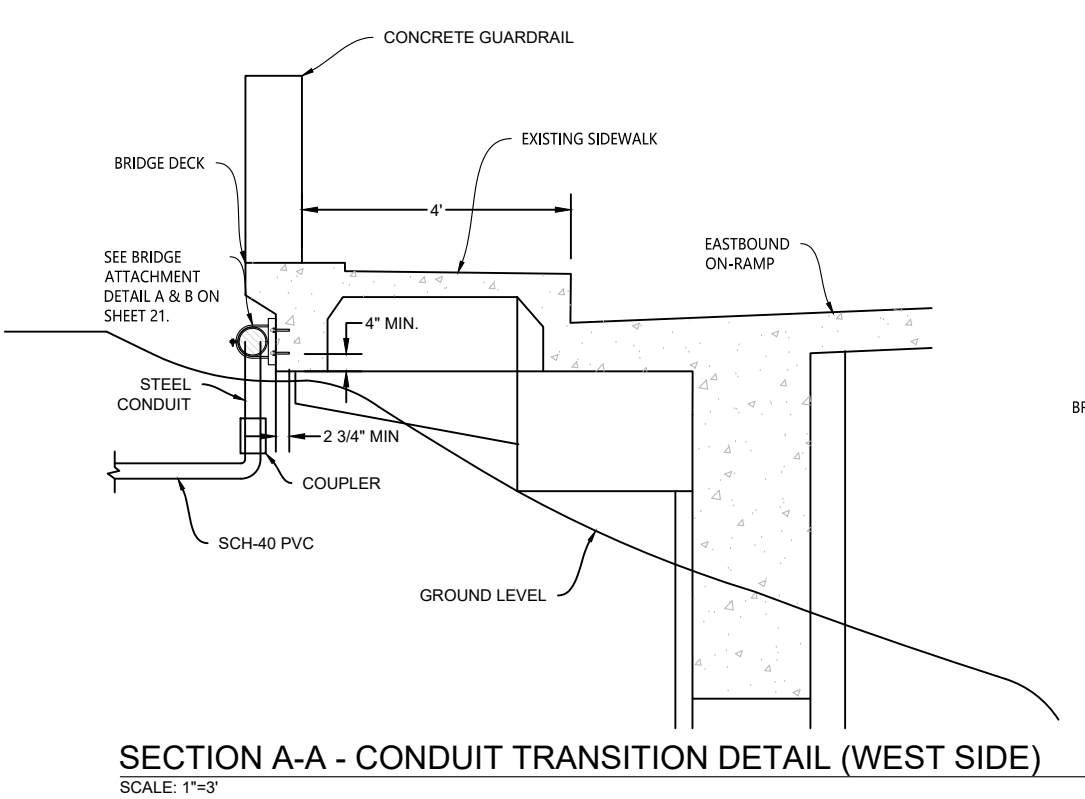
**zayo**  
GROUP

**MGC**  
TECHNICAL CONSULTING INC.

ZAYO ENGINEER: JOSEPH KLEINSASSER  
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.  
PROJECT NUMBER:  
LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202  
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
ISLAND BRIDGE - PLANS.dwg  
CONFIDENTIAL/PROPRIETARY

SHEET: 19 OF 29

# CROSS SECTIONS & ATTACHMENT DETAILS

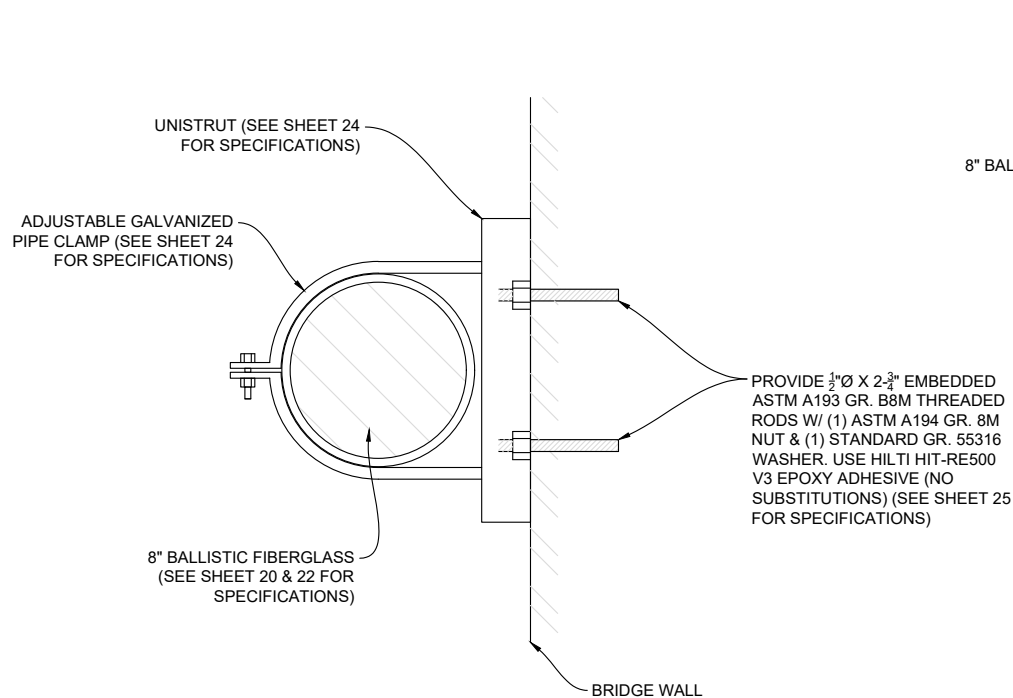


Know what's below.  
Call before you dig.

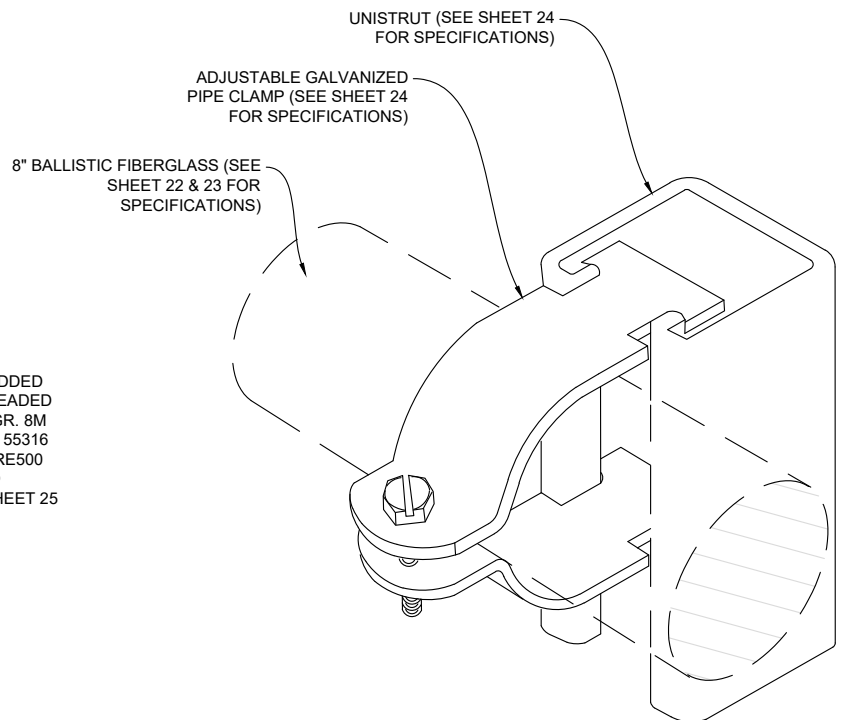
3	4/16/19	JS	CH	AS-BUILT
2	08/03/17	LS	DHN	REVISION # 3
1				ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT

<b>zayo</b> GROUP	<b>MGC</b> TECHNICAL CONSULTING INC.
ZAYO ENGINEER: JOSEPH KLEINSASSER	
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.	
PROJECT NUMBER:	
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202	
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS	
ISLAND BRIDGE - PLANS.dwg	
CONFIDENTIAL/PROPRIETARY	
SHEET: 20 OF 29	

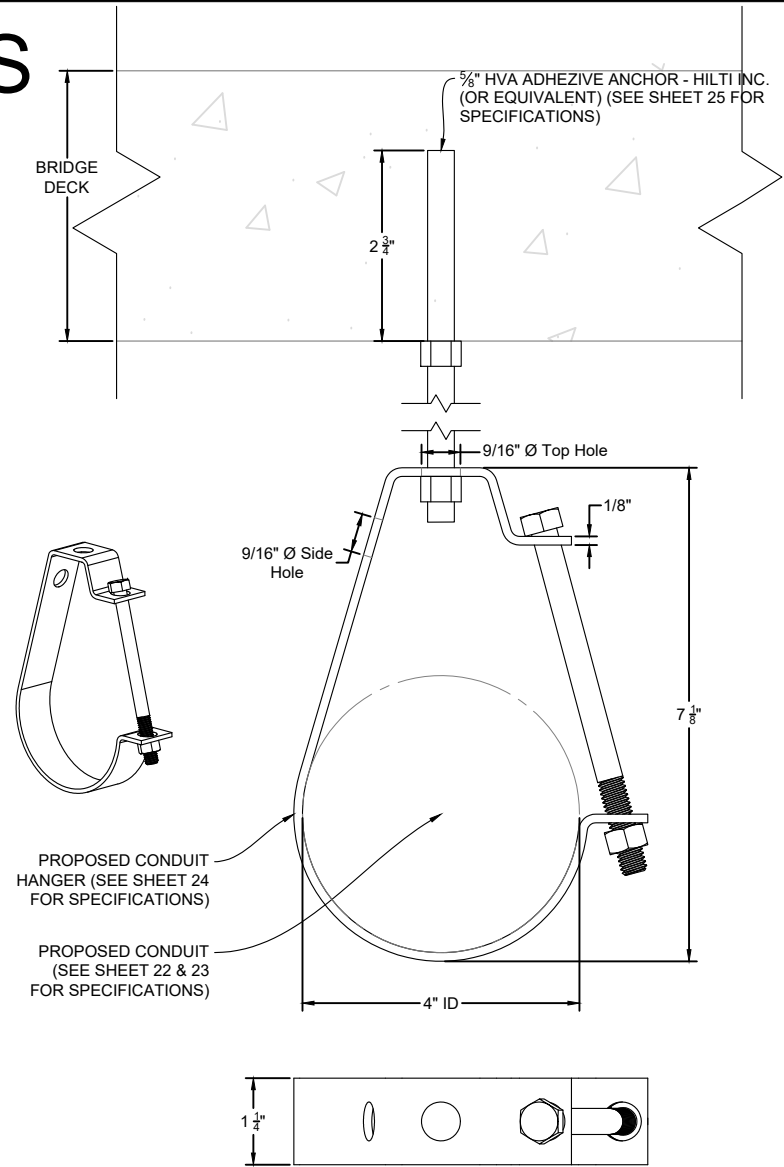
# BRIDGE ATTACHMENT DETAILS



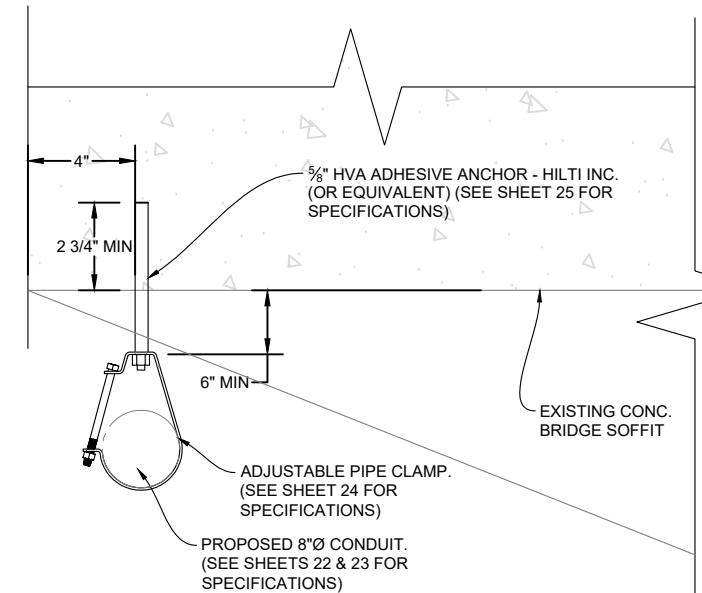
**TYPICAL A - BRIDGE ATTACHMENT DETAIL**  
SCALE: NTS



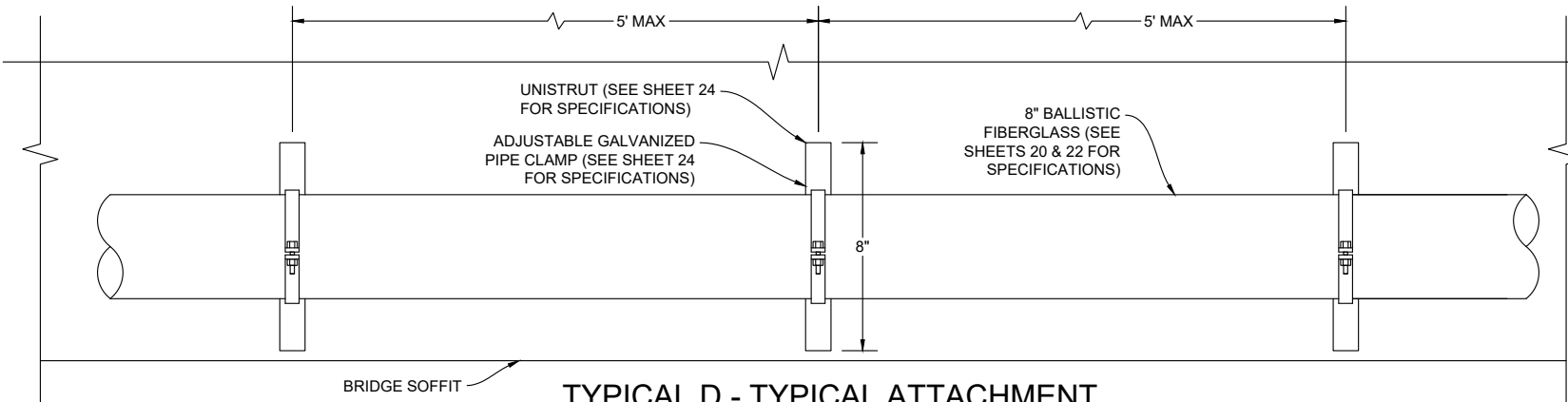
**TYPICAL B - BRIDGE ATTACHMENT DETAIL**  
SCALE: NTS  
(ISOMETRIC VIEW)



**TYPICAL C: CONDUIT HANGER TO BRIDGE DECK ATTACHMENT DETAIL**  
SCALE: NTS



**TYPICAL C.1 - CONDUIT HANGER DETAIL**  
SCALE: NTS



**TYPICAL D - TYPICAL ATTACHMENT SPACING DETAIL**  
SCALE: NTS



3	4/16/19	JS	CH	AS-BUILT
2	08/03/17	LS	DHN	REVISION # 3
1				ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT

**zayo**  
GROUP

**MGC**  
TECHNICAL CONSULTING INC.

ZAYO ENGINEER: JOSEPH KLEINSASSER  
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.  
PROJECT NUMBER:  
LOCATION: 3155 SW MOODY AVE  
PORTLAND OR, 97202  
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS  
ISLAND BRIDGE - PLANS.dwg  
CONFIDENTIAL/PROPRIETARY

SHEET: 21 OF 29



MATERIAL SPECIFICATIONS



"BULLET RESISTANT" EXTRA HEAVY WALL (XW) ABOVE GROUND FIBERGLASS CONDUIT

Designed for demanding applications including: NEC areas subject to physical damage, under roadways, under rail beds, and under bridges. Applications where "Bullet Resistance" (UL Type XW) is necessary to protect sensitive cables. Our filament wound epoxy fiberglass conduit has shown to prevent projectile penetration from a .45 caliber slug fired less than 20 feet! United Fiberglass "Bullet Resistant" conduit meets and exceeds the latest requirements of NEMA TC-14 and UL 2515-A, Standard for Supplemental Requirements for Extra Heavy Wall Reinforced Thermosetting Resin Conduit (RTRC) and Fittings.



OTHER ADVANTAGES ARE:

- LIGHTWEIGHT** A 20 foot length weighs just 55 pounds compared to 200+ pounds for Sch. 40 steel.
- CORROSION RESISTANCE** Fiberglass conduit is resistant to a wide variety of chemicals including salts and acids. It also contains an ultra-violet (UV) inhibitor.
- THERMAL STABILITY** The operating range of -40° to +250°F. make it ideal for any outside temperature environment. Its thermal stability means less expansion and contraction and fewer expansion joints.
- LOW FRICTION** The hard smooth inside diameter yields lower friction for long cable pulls.
- HIGH STRENGTH** The high impact resistance and stiffness of fiberglass conduit make it a truly "tough" material. It has a higher strength to weight ratio than steel.
- LOW COST** The low initial cost combined with the ease of installation of a lighter material make fiberglass conduit extremely competitive with Sch. 40 steel.

MINIMUM IMPACT RESISTANCE (ft/lbs)  
UL Standard

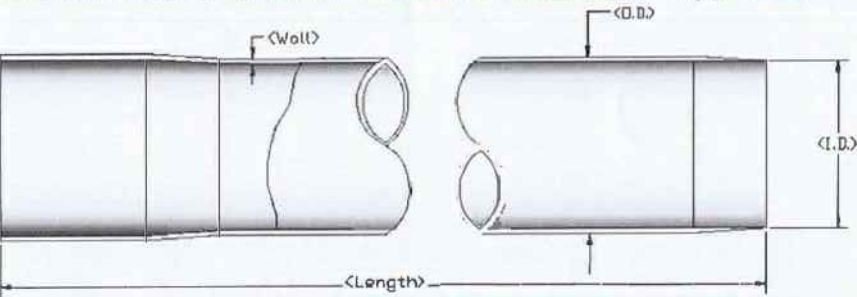
SIZE	73°F (23°C)	32°F (0°C)
3/4"	94	94
1"	150	150
1-1/4"	169	169
1-1/2"	188	188
2"	300	300
2-1/2"	375	375
3"	525	525
3-1/2"	525	525
4"	525	525
5"	525	525
6"	525	525

COMPRESSION TEST FORCE (lbs/ft)  
UL Standard

SIZE	N	lbf
3/4"	8900	2000
1"	8900	2000
1-1/4"	8900	2000
1-1/2"	8900	2000
2"	8900	2000
2-1/2"	8900	2000
3"	8900	2000
3-1/2"	8900	2000
4"	8900	2000
5"	8900	2000
6"	8900	2000



"BULLET RESISTANT" EXTRA HEAVY WALL FIBERGLASS CONDUIT - Type XW



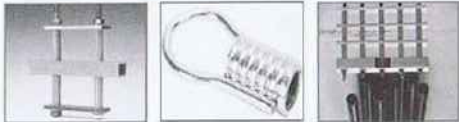
SIZE	XW PART #	ID	OD	WALL	Length	Lbs./Ft
3/4" XW	UF75A-XW-AG-10-1	.90" (23)	1.40" (36)	.25" (6)	10' (3m)	.74
1" XW	UF10A-XW-AG-10-1	1.18" (30)	1.68" (43)	.25" (6)	10' (3m)	.93
1-1/4" XW	UF12A-XW-AG-10-1	1.51" (39)	2.01" (51)	.25" (6)	10' (3m)	1.14
1-1/2" XW	UF15A-XW-AG-10-1	1.75" (44)	2.25" (57)	.25" (6)	10' (3m)	1.29
2" XW	UF20B-XW-AG-20-1	2.00" (57)	2.50" (64)	.25" (6)	20' (6.1m)	1.51
2-1/2" XW	UF25B-XW-AG-20-1	2.50" (64)	3.00" (76)	.25" (6)	20' (6.1m)	1.85
3" XW	UF30B-XW-AG-20-1	3.00" (76)	3.50" (89)	.25" (6)	20' (6.1m)	2.18
3-1/2" XW	UF35B-XW-AG-20-1	3.50" (89)	4.00" (102)	.25" (6)	20' (6.1m)	2.52
4" XW	UF40B-XW-AG-20-1	4.00" (102)	4.50" (114)	.25" (6)	20' (6.1m)	2.85
5" XW	UF50B-XW-AG-20-1	5.00" (127)	5.50" (140)	.25" (6)	20' (6.1m)	3.53
6" XW	UF60B-XW-AG-20-1	6.00" (152)	6.50" (165)	.25" (6)	20' (6.1m)	4.20
8" XW	UF80A-XW-AG-20-1	8.40" (213)	8.90" (226)	.25" (6)	20' (6.1m)	5.54

Change -20 in Part Number to -10 for 10' lengths (may be supplied with coupling end).

CONDUIT COLOR CHART  
Last Number in Part # indicate color.

1	2	3	7	1-RS
BLACK	GRAY	CONCRETE	BROWN	RED STRIPE

United Fiberglass Above Ground Extra Heavy Wall (Bullet Resistant) Products meet and exceed the latest requirements of NEMA TC-14 and UL 2515A (replaces UL1684A). No UL or NEMA standard for 8".



Conduit and supports are designed to work together as a system. For best system performance and ease of design, use United Fiberglass inserts, brackets and supports.

Dimensions are nominal and average as required by UL and/or NEMA standards.



Know what's below.  
Call before you dig.

3	4/16/19	JS	CH	AS-BUILT
2	08/03/17	LS	DHN	REVISION # 3
1				ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER:	JOSEPH KLEINSASSER
ENGINEERING FIRM:	MGC TECHNICAL CONSULTING INC.
PROJECT NUMBER:	
LOCATION:	3155 SW MOODY AVE PORTLAND OR, 97202
DRAWING NAME:	ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS
	ISLAND BRIDGE - PLANS.dwg
CONFIDENTIAL/PROPRIETARY	SHEET: 22 OF 29



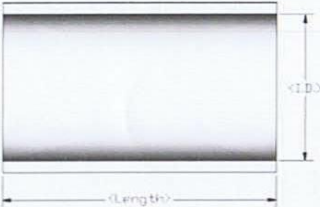
MATERIAL SPECIFICATIONS



XW SLEEVE COUPLING

SLEEVE COUPLINGS ARE USED TO JOIN SPIGOT ENDS OF CONDUIT, AS SLEEVES THROUGH A BRIDGE ABUTMENT WALL, OR AS SLEEVES AT A HANGER SUPPORT WINDOW. THEY ARE ALSO USED TO REPAIR CONDUIT.

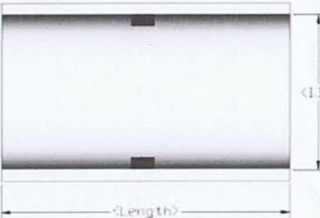
SIZE	XW PART NO.	ID	L
3/4" XW	UF75A-XW-AG-500-1	1.42"	6"
1" XW	UF10A-XW-AG-500-1	1.70"	6"
1-1/4" XW	UF12A-XW-AG-500-1	2.03"	6"
1-1/2" XW	UF15A-XW-AG-500-1	2.27"	6"
2" XW	UF20B-XW-AG-500-1	2.52"	6"
2-1/2" XW	UF25B-XW-AG-500-1	3.02"	6"
3" XW	UF30B-XW-AG-500-1	3.52"	6"
3-1/2" XW	UF35B-XW-AG-500-1	4.02"	6"
4" XW	UF40B-XW-AG-500-1	4.52"	6"
5" XW	UF50B-XW-AG-500-1	5.52"	6"
6" XW	UF60B-XW-AG-500-1	6.52"	6"
8" XW	UF80A-XW-AG-500-1	8.92"	6"



XW STOP COUPLING

STOP COUPLINGS, OR DOUBLE BELL COUPLINGS ARE USED TO JOIN SPIGOT ENDS OF CONDUIT.

SIZE	XW PART NO.	ID	L
3/4" XW	UF75A-XW-AG-510-1	1.42"	6.5"
1" XW	UF10A-XW-AG-510-1	1.70"	6.5"
1-1/4" XW	UF12A-XW-AG-510-1	2.03"	6.5"
1-1/2" XW	UF15A-XW-AG-510-1	2.27"	6.5"
2" XW	UF20B-XW-AG-510-1	2.52"	6.5"
2-1/2" XW	UF25B-XW-AG-510-1	3.02"	6.5"
3" XW	UF30B-XW-AG-510-1	3.52"	6.5"
3-1/2" XW	UF35B-XW-AG-510-1	4.02"	6.5"
4" XW	UF40B-XW-AG-510-1	4.52"	6.5"
5" XW	UF50B-XW-AG-510-1	5.52"	6.5"
6" XW	UF60B-XW-AG-510-1	6.52"	6.5"
8" XW	UF80A-XW-AG-510-1	8.92"	6.5"



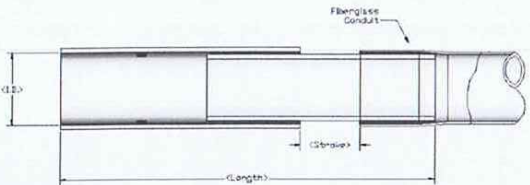
Dimensions are nominal and average as required by UL and/or NEMA standards.



XW EXPANSION JOINT

Single Direction, Socket x Spigot, Without O-Ring

DIAMETER	AG PART NO.	ID	LENGTH	STROKE
3/4" XW	UF75A-XW-AG-400-1	1.42"	26.5"	8"
1" XW	UF10A-XW-AG-400-1	1.70"	26.5"	8"
1-1/4" XW	UF12A-XW-AG-400-1	2.03"	26.5"	8"
1-1/2" XW	UF15A-XW-AG-400-1	2.27"	26.5"	8"
2" XW	UF20B-XW-AG-400-1	2.52"	26.5"	8"
2-1/2" XW	UF25B-XW-AG-400-1	3.02"	26.5"	8"
3" XW	UF30B-XW-AG-400-1	3.52"	26.5"	8"
3-1/2" XW	UF35B-XW-AG-400-1	4.02"	26.5"	8"
4" XW	UF40B-XW-AG-400-1	4.52"	26.5"	8"
5" XW	UF50B-XW-AG-400-1	5.52"	26.5"	8"
6" XW	UF60B-XW-AG-400-1	6.52"	26.5"	8"
8" XW	UF80A-XW-AG-400-1	8.92"	26.5"	8"



EXPANSION JOINTS ARE USED TO ACCOMMODATE CHANGES IN CONDUIT LENGTH DUE TO TEMPERATURE FLUCTUATIONS.

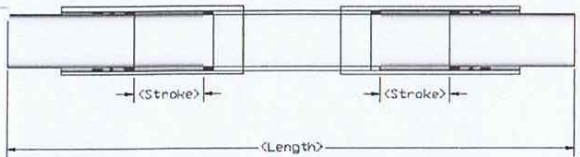
Expansion Joints can be manufactured in different configurations and with a longer stroke. Please consult the factory for your requirements.



XW EXPANSION JOINT

Back-to-Back, Spigot x Spigot, Without O-Ring

DIAMETER	AG PART NO.	ID	LENGTH	STROKE
3/4" XW	UF75A-XW-AG-420-1	1.42"	45.5"	8"
1" XW	UF10A-XW-AG-420-1	1.70"	45.5"	8"
1-1/4" XW	UF12A-XW-AG-420-1	2.03"	45.5"	8"
1-1/2" XW	UF15A-XW-AG-420-1	2.27"	45.5"	8"
2" XW	UF20B-XW-AG-420-1	2.52"	45.5"	8"
2-1/2" XW	UF25B-XW-AG-420-1	3.02"	45.5"	8"
3" XW	UF30B-XW-AG-420-1	3.52"	45.5"	8"
3-1/2" XW	UF35B-XW-AG-420-1	4.02"	45.5"	8"
4" XW	UF40B-XW-AG-420-1	4.52"	45.5"	8"
5" XW	UF50B-XW-AG-420-1	5.52"	45.5"	8"
6" XW	UF60B-XW-AG-420-1	6.52"	45.5"	8"
8" XW	UF80A-XW-AG-420-1	8.92"	45.5"	8"



EXPANSION JOINTS ARE USED TO ACCOMMODATE CHANGES IN CONDUIT LENGTH DUE TO TEMPERATURE FLUCTUATIONS.

3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER:	JOSEPH KLEINSASSER
ENGINEERING FIRM:	MGC TECHNICAL CONSULTING INC.
PROJECT NUMBER:	
LOCATION:	3155 SW MOODY AVE PORTLAND OR, 97202
DRAWING NAME:	ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ISLAND BRIDGE - PLANS.dwg
CONFIDENTIAL/PROPRIETARY	SHEET: 23 OF 29



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MATERIAL SPECIFICATIONS

Side-Load Threaded-Rod-Mount Loop Hangers



Access material quickly without removing the mounted hanger. These hangers have a removable bolt for loading pipe, tube, and conduit from the side. They have an unthreaded hole on top for mounting with a threaded rod or other fastener.

Hangers with side mounting hole can also be wall mounted with a fastener.

Zinc-plated steel hangers have good corrosion resistance.

304 stainless steel hangers are more corrosion resistant than zinc-plated steel.

For technical drawings and 3-D models, click on a part number.

ID	Capacity, lbs.	Lg.	Wd.	Ht.	Thick.	Mounting Fasteners Included	Side	Top	For Threaded Rod Size	Includes	Each
Zinc-Plated Steel											
1 1/16"	400	2 7/16"	3/4"	3 3/8"	1/8"	No	7/16"	3/8"	3/8"-16	Closure Bolt and Nut	3131T52 \$2.12
1 5/16"	400	2 11/16"	3/4"	3 9/16"	1/8"	No	7/16"	3/8"	3/8"-16	Closure Bolt and Nut	3131T53 2.17
1 11/16"	400	3"	3/4"	4 1/16"	1/8"	No	7/16"	3/8"	3/8"-16	Closure Bolt and Nut	3131T54 2.17
1 7/8"	400	3 5/16"	3/4"	4 1/2"	1/8"	No	7/16"	3/8"	3/8"-16	Closure Bolt and Nut	3131T55 2.41
2 3/8"	400	3 11/16"	3/4"	4 7/8"	1/8"	No	7/16"	3/8"	3/8"-16	Closure Bolt and Nut	3131T56 2.99
2 7/8"	500	4 5/16"	1 1/4"	5 13/16"	1/8"	No	9/16"	9/16"	1/2"-13	Closure Bolt and Nut	3131T57 5.89
3 1/2"	500	4 7/8"	1 1/4"	6 9/16"	1/8"	No	9/16"	9/16"	1/2"-13	Closure Bolt and Nut	3131T58 6.13
4"	800	5 1/2"	1 1/4"	8"	1/8"	No	1 1/2"	1 1/2"	1/2"-13	Closure Bolt and Nut	3131T59 8.71
4 1/2"	550	6 1/4"	1 1/4"	8 1/4"	3/16"	No	9/16"	11/16"	5/8"-11	Closure Bolt and Nut	3131T61 8.91
5 9/16"	550	7 3/16"	1 1/4"	9 3/8"	3/16"	No	9/16"	11/16"	5/8"-11	Closure Bolt and Nut	3131T62 16.54
6 5/8"	600	8 1/2"	1 1/4"	10 7/8"	1/4"	No	9/16"	13/16"	3/4"-10	Closure Bolt and Nut	3131T63 17.40
304 Stainless Steel											
1 1/16"	400	2 7/16"	1"	3 3/8"	1/8"	No	7/16"	7/16"	3/8"-16	Closure Bolt and Nut	3131T66 8.67
1 5/16"	400	2 1/2"	1"	3 5/8"	1/8"	No	7/16"	7/16"	3/8"-16	Closure Bolt and Nut	3131T67 9.07
1 11/16"	400	2 7/8"	1"	4 1/8"	1/8"	No	7/16"	7/16"	3/8"-16	Closure Bolt and Nut	3131T68 9.89
1 7/8"	400	3 1/8"	1"	4 9/16"	1/8"	No	7/16"	7/16"	3/8"-16	Closure Bolt and Nut	3131T69 10.58
2 3/8"	400	3 9/16"	1"	4 7/8"	1/8"	No	7/16"	7/16"	3/8"-16	Closure Bolt and Nut	3131T71 11.33
2 7/8"	500	4 3/4"	1 1/4"	5 7/8"	1/8"	No	9/16"	9/16"	1/2"-13	Closure Bolt and Nut	3131T72 14.30
3 1/2"	500	5"	1 1/4"	6 5/8"	1/8"	No	9/16"	9/16"	1/2"-13	Closure Bolt and Nut	3131T73 15.13
4"	500	5 1/2"	1 1/4"	7 1/8"	1/8"	No	9/16"	9/16"	1/2"-13	Closure Bolt and Nut	3131T74 15.44
4 1/2"	550	6"	1 1/4"	8 3/8"	3/16"	No	9/16"	11/16"	5/8"-11	Closure Bolt and Nut	3131T75 17.98
5 9/16"	550	7 1/4"	1 1/4"	9 9/16"	3/16"	No	9/16"	11/16"	5/8"-11	Closure Bolt and Nut	3131T76 21.44
6 5/8"	600	8 3/8"	1 1/4"	11 1/16"	1/4"	No	9/16"	13/16"	3/4"-10	Closure Bolt and Nut	3131T77 27.16

	Channel Dimensions		Material & Thickness			Hole Pattern Styles						
	Width	Height	Steel	Stainless Steel	Alum.	HS	T	WT	KO	SL	DS	H3
CHANNEL	In (mm)	In (mm)	gauge	gauge	In (mm)							
P1000	1 5/8 (41.3)	1 5/8 (41.3)	12 ga	12 ga	0.109 (2.8)	<input type="checkbox"/>	<input type="checkbox"/>					
P1100	1 5/8 (41.3)	1 5/8 (41.3)	14 ga	14 ga	-	<input type="checkbox"/>	<input type="checkbox"/>					
P2000	1 5/8 (41.3)	1 5/8 (41.3)	16 ga	-	-	<input type="checkbox"/>	<input type="checkbox"/>					
P3000	1 5/8 (41.3)	1 3/8 (34.9)	12 ga	-	-	<input type="checkbox"/>	<input type="checkbox"/>					
P3300	1 5/8 (41.3)	7/8 (22.2)	12 ga	12 ga	-	<input type="checkbox"/>	<input type="checkbox"/>					
P4000	1 5/8 (41.3)	13/16 (20.6)	16 ga	16 ga	0.078 (2.0)	<input type="checkbox"/>	<input type="checkbox"/>					
P4100	1 5/8 (41.3)	13/16 (20.6)	14 ga	-	-	<input type="checkbox"/>	<input type="checkbox"/>					
P4400	1 5/8 (41.3)	1 (25.4)	12 ga	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
P4520	1 5/8 (41.3)	13/16 (20.6)	12 ga	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
P5000	1 5/8 (41.3)	3 1/4 (82.6)	12 ga	12 ga	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
P5500	1 5/8 (41.3)	2 7/16 (61.9)	12 ga	-	0.109 (2.8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

UNISTRUT SPECS

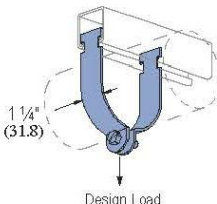
SMOOTHWALL – SPECS					
Wall Type	Pipe Size	1/2"	3/4"	1"	1 1/4"
	Nom OD (in)	0.840	1.050	1.315	1.660
	OD Tolerance +/-	0.004	0.005	0.007	0.008
	Bend Radius (in) – Supported	8	10	13	17
	Bend Radius (in) – Unsupported	16	20	26	34
SDR-9	Min. Wall (in)	0.093	0.117	0.146	0.184
	Wall Tolerance +	0.020	0.020	0.020	0.022
	Avg ID (in)	0.634	0.796	1.003	1.270
	Weight (#/ft)	0.098	0.152	0.234	0.370
	Safe Working Load	525	821	1,288	2,052
SDR-11	Min. Wall (in)	0.076	0.095	0.120	0.151
	Wall Tolerance +	0.020	0.020	0.020	0.020
	Avg ID (in)	0.668	0.840	1.055	1.338
	Weight (#/ft)	0.084	0.128	0.199	0.312
	Safe Working Load	440	687	1,078	1,717
SDR-13.5	Min. Wall (in)	0.062	0.078	0.097	0.123
	Wall Tolerance +	0.020	0.020	0.020	0.020
	Avg ID (in)	0.696	0.874	1.101	1.394
	Weight (#/ft)	0.072	0.110	0.167	0.263
	Safe Working Load	365	570	894	1,425

CONDUIT HANGER ATTACHMENT SPECS

P1109 THRU P1126

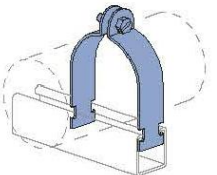
PIPE CLAMPS FOR RIGID STEEL CONDUIT

EG HG



1 1/4"  
(31.8)

Design Load



PART NO.	CONDUIT SIZE IN	O.D. SIZE IN (mm)	THICKNESS GAUGE (mm)	Wt/100 pcs Lbs (kg)	DESIGN LOAD Lbs (kN)
P1109	3/8	0.675 17.1	16 1.5	10 4.5	400 1.78
P1111	1/2	0.840 21.3	16 1.5	11 5.0	400 1.78
P1114	1 1/4	1.660 42.2	14 1.9	19 8.6	600 2.67
P1115	1 1/2	1.900 48.3	12 2.7	29 13.2	800 3.56
P1117	2	2.375 60.3	12 2.7	34 15.4	800 3.56

PART NO.	CONDUIT SIZE IN	O.D. SIZE IN (mm)	THICKNESS GAUGE (mm)	Wt/100 pcs Lbs (kg)	DESIGN LOAD Lbs (kN)
P1118	2 1/2	2.875 73.0	12 2.7	40 18.1	800 3.56
P1119	3	3.500 88.9	12 2.7	47 21.3	800 3.56
P1123	5	5.563 141.3	11 3.0	80 36.3	1,000 4.45
P1124	6	6.625 168.3	10 3.4	102 46.3	1,000 4.45
P1126	8	8.625 219.1	10 3.4	130 59.0	1,000 4.45

SLOTTED HEX HEAD SCREW AND NUT INCLUDED

ADJUSTABLE GALVANIZED PIPE CLAMP SPECS



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3	4/16/19	JS	CH	AS-BUILT
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ZAYO ENGINEER: JOSEPH KLEINSASSER				
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.				
PROJECT NUMBER:				
LOCATION: 3155 SW MOODY AVE				
PORTLAND OR, 97202				
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS				
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## MATERIAL SPECIFICATIONS

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[HAS-R 316 SS](#)

# HAS-R 316 SS

## Anchor rod (SS316 stainless steel)

- Material composition: Stainless steel, 316
- Environmental conditions: Covered by ground soil, Outdoor, Underwater, fresh water
- Head configuration: Externally threaded

[Ordering Info](#)
[Related Products](#)
[Features & Applications](#)
[Technical Data](#)
[Documents & Downloads](#)

### Technical Data

Material composition	Stainless steel, 316
Environmental conditions	Covered by ground soil, Outdoor, Underwater, fresh water
Head configuration	Externally threaded
Type of fixing	Pre-fastening

### Features

- Designed for use with Hilti HVU capsules in solid concrete or with Hilti HIT injectable adhesive mortar in various base materials
- Large range of anchor rod diameters (1/4" - 1")
- Features a chisel tip to cut and mix the Hilti HVU capsule
- Head marking for easy verification of steel grade and rod length, even after installation
- Chamfered end ensures easy threading of the nut

### Applications

- Suitable for fastenings in concrete and other base materials in combination with the relevant HIT injectable mortars
- Suitable for fastenings in concrete in combination with HVU adhesive capsules (3/8" to 1")
- 1/4" and 5/16" rods without chisel tip for use with HY70 injectable mortar
- For outdoor applications or fastenings in corrosive environments

# HIT-RE 500-SD Epoxy Adhesive Anchoring System 3.2.4

## 3.2.4.1 Product Description

Hilti HIT-RE 500-SD Adhesive Anchoring System is an injectable two-component epoxy adhesive. The two components are kept separate by means of a dual-cylinder foil pack attached to a manifold. The two components combine and react when dispensed through a static mixing nozzle attached to the manifold.

Hilti HIT-RE 500-SD Adhesive Anchoring System may be used with continuously threaded rod, Hilti HIS-N and HIS-RN internally-threaded inserts or deformed reinforcing bar installed in cracked or uncracked concrete. The primary components of the Hilti Adhesive Anchoring System are:

- Hilti HIT-RE 500-SD adhesive packaged in foil packs
- Adhesive mixing and dispensing equipment
- Equipment for hole cleaning and adhesive injection

### Product Features

- Superior bond performance
- Seismic qualified per IBC®/IRC® 2009, IBC®/IRC® 2006, IBC®/IRC® 2003 and IBC®/IRC® 2000. Please refer to ESR-2322 (ICC-ES AC308) for Seismic Design Category A through F
- Use in diamond cored or pneumatic drilled holes and under water up to 165 feet (50 m)
- Meets requirements of ASTM C 881-90, Type IV, Grade 2 and 3, Class A, B, C except gel times
- Meets requirements of AASHTO specification M235, Type IV, Grade 3, Class A, B, C except gel times
- Mixing tube provides proper mixing, eliminates measuring errors and minimizes waste
- Contains no styrene; virtually odorless
- Extended temperature range from 41°F to 104°F (5°C to 40°C)
- Excellent weathering resistance; Resistance against elevated temperatures

3.2.4.1	Product Description
3.2.4.2	Material Specifications
3.2.4.3	Strength Design
3.2.4.4	Technical Data
3.2.4.5	Installation Instructions
3.2.4.6	Ordering Information

### Listings/Approvals

ICC-ES (International Code Council)  
ESR-2322

NSF/ANSI Std 61

certification for use in potable water

European Technical Approval  
ETA-07/0280

COLA (City of Los Angeles)

RR 25700

### Independent Code Evaluation

IBC®/IRC® 2009 (ICC-ES AC308)

IBC®/IRC® 2006 (ICC-ES AC308)

IBC®/IRC® 2003 (ICC-ES AC308)

IBC®/IRC® 2000 (ICC-ES AC308)

FBC 2007

LEED®; Credit 4.1-Low Emitting  
Materials

The Leadership in Energy and Environmental Design (LEED®) Green Building Rating system™ is the nationally accepted benchmark for the design, construction and operation of high performance green buildings.

## Fastener Components

HAS Threaded Rods

HIS Internally Threaded Inserts

Rebar (supplied by contractor)

The diagram illustrates the components and application process for the HIT-RE 500-SD Adhesive Anchoring System. On the left, three types of fasteners are shown: HAS Threaded Rods, HIS Internally Threaded Inserts, and Rebar (supplied by contractor). In the center, a HIT RE Mixer is shown. To the right of the mixer, three types of adhesive packaging are shown: HIT-RE 500-SD Refill Pack, HIT-RE 500-SD Medium Cartridge, and HIT-RE 500-SD Jumbo Cartridge. These are connected to a Refill Pack Holder. To the right of the holder, three types of dispensers are shown: ED 3500 Battery Dispenser, P3500 Dispenser, and MD2500 Dispenser. These are connected to a Refill Pack Holder. On the far right, a P8000 Dispenser is shown. The diagram shows the flow of adhesive from the packaging through the holder and dispenser into the fastener.

Hilti, Inc. (US) 1-800-879-8000 | [www.us.hilti.com](http://www.us.hilti.com) | en español 1-800-879-5000 | Hilti (Canada) Corp., 1-800-363-4458 | [www.hilti.ca](http://www.hilti.ca) | Anchor Fastening Technical Guide 2011

Adhesive Anchoring Systems

HILTI

### 3.2.4 HIT-RE 500-SD Epoxy Adhesive Anchoring System

#### Guide Specifications

#### Master Format Section:

#### Previous 2004 Format

03250 03 16 00 (Concrete Anchors)

#### Related Sections:

03200 03 20 00 (Concrete Reinforcing)  
05050 05 50 00 (Metal Fabrications)  
05120 05 10 00 (Structural Metal Framing)

Injectable adhesive shall be used for installation of all reinforcing steel dowels or threaded anchor rods and inserts into existing concrete. Adhesive shall be furnished in side-by-side refill packs which keep component A and component B separate. Side-by-side packs shall be designed to compress

during use to minimize waste volume. Side-by-side packs shall also be designed to accept static mixing nozzle which thoroughly blends component A and component B and allows injection directly into drilled hole. Only injection tools and static mixing nozzles as recommended by manufacturer shall be used. Manufacturer's instructions shall be followed. Injection adhesive shall be formulated to include resin and hardener to provide optimal curing speed as well as high strength and stiffness. Typical curing time at 68°F (20°C) shall be approximately 12 hours.

Injection adhesive shall be HIT-RE 500-SD, as furnished by Hilti.

**Anchor Rods** shall be furnished with chamfered ends so that either end will accept a nut and washer. Alternatively, anchor rods shall be furnished with a 45 degree chisel point on one end to allow

for easy insertion into the adhesive-filled hole. Anchor rods shall be manufactured to meet the following requirements:

1. ISO 898 Class 5.8
2. ASTM A 193, Grade B7 (high strength carbon steel anchor);
3. AISI 304 or AISI 316 stainless steel, meeting the requirements of ASTM F 593 (condition CW).

Special order length HAS Rods may vary from standard product.

**Nuts and Washers** of other grades and styles having specified proof load strength greater than the specified grade and style are also suitable. Nuts must have specified proof load strength equal to or greater than the minimum tensile strength of the specified threaded rod.

### 3.2.4.2 Material Specifications

#### Material Properties of Cured Adhesive

Bond Strength ASTM C882-91 <sup>1</sup> 2 day cure 7 day cure	12.4 MPa 12.4 MPa	1800 psi 1800 psi
Compressive Strength ASTM D-695-96 <sup>1</sup>	82.7 MPa	12,000 psi
Compressive Modulus ASTM D-695-96 <sup>1</sup>	1493 MPa	0.22 x 10 <sup>6</sup> psi
Tensile Strength 7 day ASTM D-638-97	43.5 MPa	6310 psi
Elongation at break ASTM D-638-97	2.0%	2.0%
Heat Deflection Temperature ASTM D-648-95	63°C	146°F
Absorption ASTM D-570-95	0.06%	0.06%
Linear Coefficient of Shrinkage on Cure ASTM D-2566-86	0.004	0.004
Electrical resistance DIN IEC 93 (12.93)	6.6 x 10 <sup>10</sup> Ω/m	1.7 x 10 <sup>10</sup> Ω/in.

1 Minimum values obtained as a result of three cure temperatures (23°, 40°, 60°F)



92 Hilti, Inc. (US) 1-800-878-8000 | www.us.hilti.com | en.eso/pol 1-800-878-5000 | Hilti (Canada) Corp. 1-800-363-4458 | www.hilti.ca | Anchor Fastening Technical Guide 2011

## ANCHOR BOLT SPECS

## EPOXY SPECS



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3			AS-BUILT
2	4/16/19	JS	CH
1	08/03/17	LS	DHN
			ORIGINAL
NO.	DATE	ENGINEER	DRAFTER
			COMMENT
 			
ZAYO ENGINEER: JOSEPH KLEINSSASSER			
ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.			
PROJECT NUMBER:			
LOCATION: 3155 SW MOODY AVE PORTLAND OR, 97202			
DRAWING NAME: ZAYO - PORTLAND TO THE DALLES - S1B1 - ROSS ---- ISLAND BRIDGE - PLANS.dwg			
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SHEET: 25 OF 29			

## MATERIAL SPECIFICATIONS

BID	PART NAME	NEMA SHEET METAL BOX	PART No.	SNB-3754	REVISION DATE	6-7-13
DESIGNED TO MEET NEMA 1, 2, 4, 4X, 12, 13 AND IP-66 UL LISTED AND TESTED TO UL508A. UL FILE #E194432						
<p><b>INSIDE VIEW OF COVER</b></p> <ul style="list-style-type: none"> <li>M6x1.0 PITCH x 16mm LG. GROUND STUD</li> <li>.80 [20.3] WIDE TYP.</li> <li>POURED GASKET</li> <li>QUARTER-TURN KEYED LATCH (3X)</li> <li>.437 [11.10] x .687 [17.45] OBLONG EACH BRACKET</li> </ul> <p><b>FRONT VIEW (COVER NOT SHOWN)</b></p> <ul style="list-style-type: none"> <li>M8x1.25 PITCH x 16mm LG. WELD STUD/STANDOFF (4X) (INCLUDES FLAT WASHER, SPLIT LOCKWASHER &amp; HEX NUT FOR INTERNAL PANEL MOUNTING)</li> <li>INTERNAL PANEL</li> </ul> <p><b>BACK VIEW (HOLE PLUGS NOT SHOWN)</b></p> <p><b>SECTION A-A</b></p>						
<b>MATERIAL:</b> BODY & COVER - 16 GA. [1.5mm] C.R.S. INTERNAL PANEL - 14 GA. [2.0mm] C.R.S. WALL MOUNTING BRACKETS - 14 GA. [2.0mm] TYPE 430 STAINLESS STEEL STRIKERS - 11 GA. STAINLESS STEEL 304 HINGE PINS & WALL MOUNTING HARDWARE - TYPE 201 STAINLESS STEEL INTERNAL PANEL MOUNTING HARDWARE & GROUND STUD HARDWARE - PLAIN STEEL LATCHES - ZINC DIE CAST LATCH GASKET WASHER - BLACK ACRYLONITRILE-BUTADIENE RUBBER POURED GASKET - BLACK POLYURETHANE FOAM SEALING WASHERS - BLACK NEOPRENE HOLE PLUGS - LIGHT GRAY NEOPRENE						
<b>SUPPLIED WALL MOUNTING BRACKET KIT CONTAINS:</b> QTY. (4) WALL MOUNTING BRACKETS QTY. (4) HEX HEAD BOLT M10x1.5 PITCH x 19.5mm LG. QTY. (8) SEALING WASHERS QTY. (4) FLAT WASHERS M10 QTY. (4) SPLIT LOCKWASHERS M10 QTY. (4) HEX NUTS M10x1.5						
<b>SUPPLIED GROUNDING KIT CONTAINS:</b> QTY. (1) GROUND WIRE 14-16 GA. YELLOW/GREEN WITH RING TERMINAL (M6) AT EACH END QTY. (4) FLAT WASHER M6 QTY. (2) SPLIT LOCKWASHER M6 QTY. (2) HEX NUT M6x1.0						

FCA243624T-00006  
FIBERGLASS / POLYMER CONCRETE  
ASSEMBLY

24"X36"X24"  
(For actual dimensions see drawing)

Fiberglass/ Polymer Concrete Assembly,  
Tapered Sides, No Floor, WUC 3.6,  
ANSI/SCTE 77-"T15/20K, "3/8 " Hex  
Bolts, Standard Nameplate (Specify at  
time of order) Installed

**LOAD RATINGS**  
Incidental traffic - Parking Lot, Sidewalk  
Conforms to:  
WUC 3.6  
ASTM C 857  
ANSI/SCTE 77

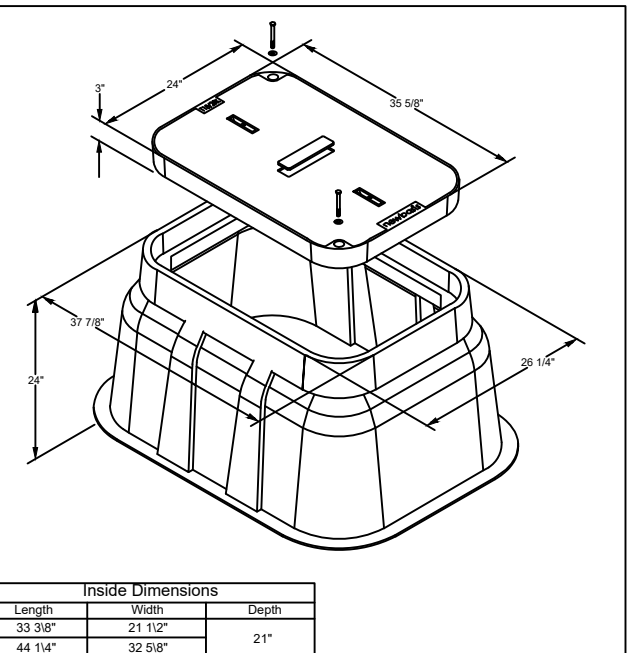
**FEATURES:**  
 UL classified polymer concrete  
 Drop-in nameplate  
 Shipped assembled  
 Skid resistant cover  
 Stainless steel bolts  
 Cast-in floating nut box  
 - Integral drain holes

Additional product information  
continued on the reverse



2626 Kansas Avenue  
Riverside, California 92507  
951.787.0600  
951.787.0632 (fax)  
info@newbasis.com  
newbasis.com

Inside Dimensions		
Length	Width	Depth
33 3/8"	21 1/2"	21"
44 1/4"	32 5/8"	



### NB2436 HANDHOLE DETAIL

3				AS-BUILT
2	4/16/19	JS	CH	REVISION # 3
1	08/03/17	LS	DHN	ORIGINAL
NO.	DATE	ENGINEER	DRAFTER	COMMENT



ZAYO ENGINEER:	JOSEPH KLEINSASSER
ENGINEERING FIRM:	MGC TECHNICAL CONSULTING INC.
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# SITE PHOTOGRAPHS

PHOTO #1: FACING NORTH ON SOUTH SIDE OF ROSS ISLAND BRIDGE

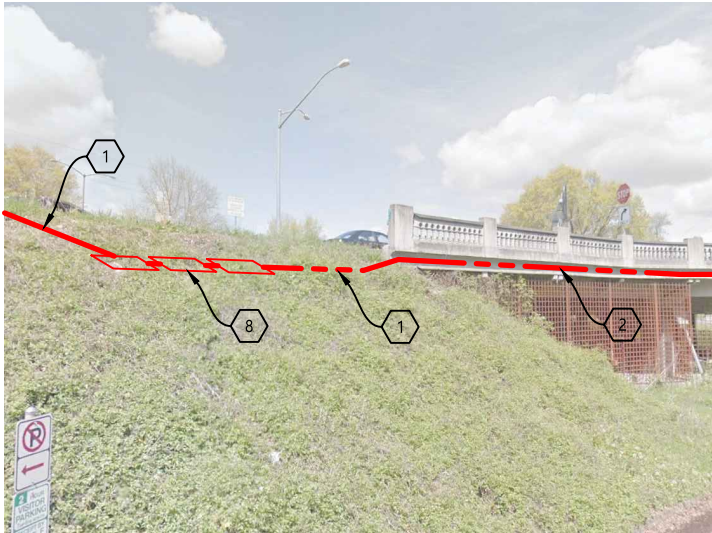


PHOTO #2: FACING WEST ON SOUTH SIDE OF ROSS ISLAND BRIDGE



PHOTO #3: FACING EAST ON SOUTH SIDE OF ROSS ISLAND BRIDGE

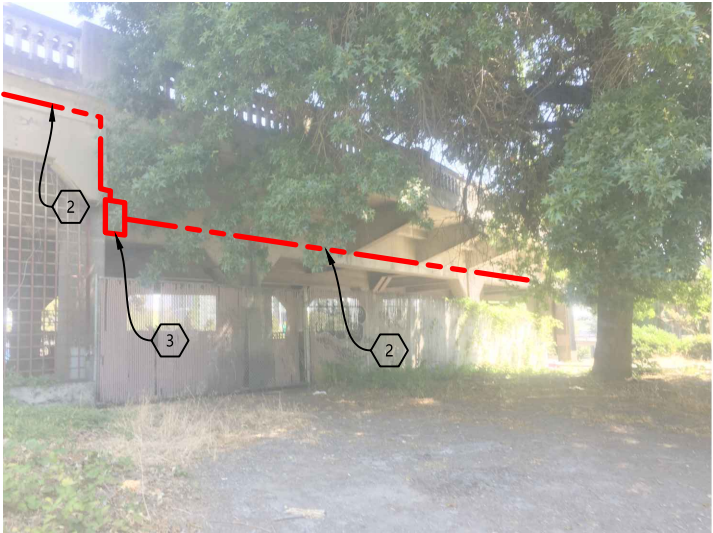


PHOTO #4: FACING WEST ON SOUTH SIDE OF BRIDGE EAST SIDE OF WILLAMETTE RIVER



PHOTO #5: FACING EAST ON SOUTH SIDE OF ROSS ISLAND BRIDGE

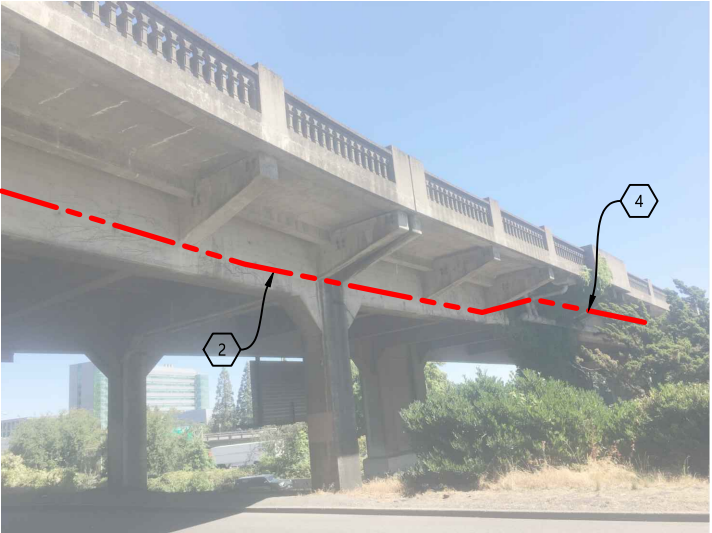
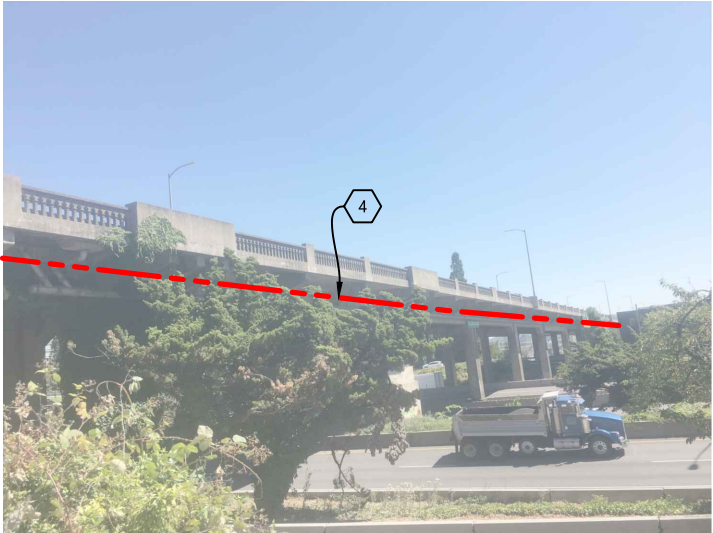


PHOTO #6: FACING EAST ON SOUTH SIDE OF ROSS ISLAND BRIDGE



## CONSTRUCTION NOTES

- 1 PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5 INNERDUCT. PULL FIBER CABLES THROUGH. REPAIR SURFACE PER LOCAL JURISDICTION STANDARDS. CONTRACTOR TO POT HOLE ALL UTILITIES PRIOR TO CONSTRUCTION.
- 2 PROPOSED PLACE (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SHEET 19 & 20 FOR MOUNTING DETAILS.
- 3 PROPOSED INSTALL (1) 24"x24" J-BOX. PULL FIBER CABLE AS NEEDED. SEE SHEET 20 & 26 FOR DETAILS AND SPECIFICATIONS.
- 4 PROPOSED HANG (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 8 PROPOSED (3) NB2436 VAULTS. PULL FIBER CABLE THROUGH. SEE SHEET 26 FOR DETAILS.



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# SITE PHOTOGRAPHS

PHOTO #7: FACING EAST ON SOUTH SIDE OF ROSS ISLAND BRIDGE ON SW MOODY AVE.



PHOTO #8: FACING WEST ON SOUTH SIDE OF BRIDGE, EAST SIDE OF WILLAMETTE RIVER

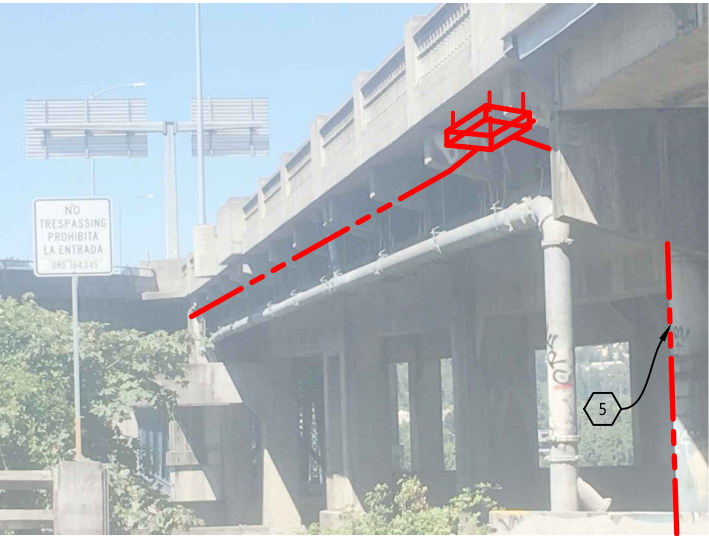
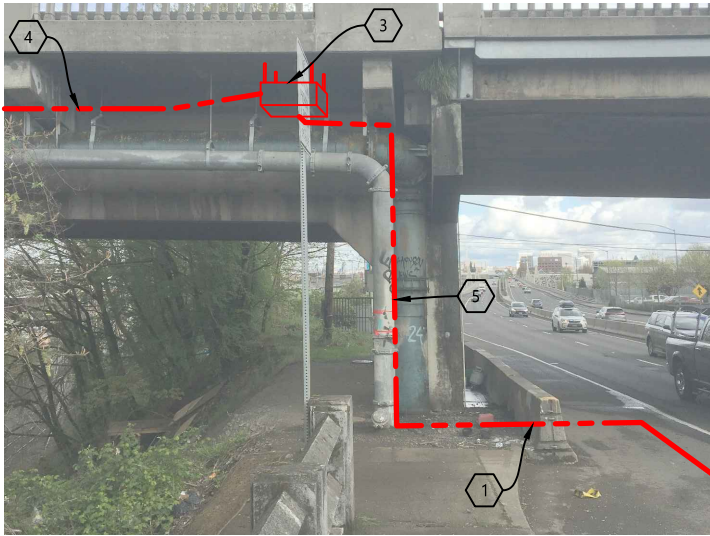


PHOTO #9: FACING NORTH ON SOUTH SIDE OF BRIDGE, EAST SIDE OF WILLAMETTE RIVER



## CONSTRUCTION NOTES

- 1 PROPOSED BORE NEW (4) 1.25" HDPE SDR 13.5 INNERDUCT. PULL FIBER CABLES THROUGH. REPAIR SURFACE PER LOCAL JURISDICTION STANDARDS. CONTRACTOR TO POT HOLE ALL UTILITIES PRIOR TO CONSTRUCTION.
- 3 PROPOSED INSTALL (1) 24"X24" J-BOX. PULL FIBER CABLE AS NEEDED. SEE SHEET 20 & 26 FOR DETAILS AND SPECIFICATIONS.
- 4 PROPOSED HANG (1) 8" BALLISTIC FIBERGLASS CONDUIT ON SOUTH SIDE OF BRIDGE. PLACE (4) 1.25" HDPE SDR 13.5 INNERDUCT IN NEW 8" CONDUIT. PULL FIBER CABLE THROUGH. SEE SECTIONS ON SHEET 19 & 20 AND DETAILS ON SHEET 21 FOR HANGING DETAILS.
- 5 PROPOSED PLACE (1) 8" GALVANIZED STEEL CONDUIT TO TRANSITION FROM PULL BOX TO GROUND. PULL FIBER CABLE THROUGH.

PHOTO #10: FACING EAST ON SOUTH SIDE OF BRIDGE, EAST SIDE OF WILLAMETTE RIVER

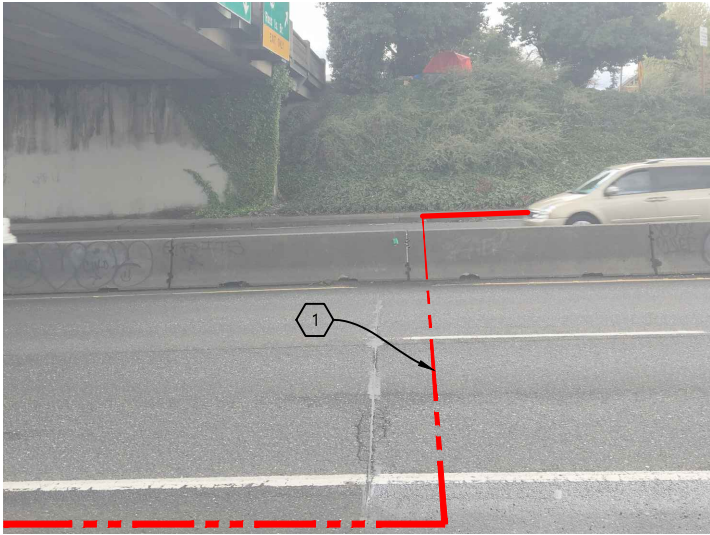
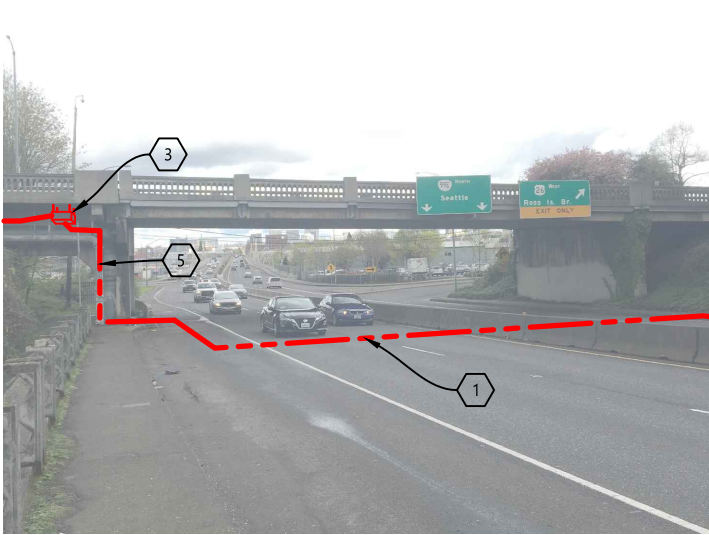


PHOTO #11: FACING NORTH ON SOUTH SIDE OF BRIDGE, EAST SIDE OF WILLAMETTE RIVER



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SITE PHOTOGRAPHS 2 - BUCKET TRUCK



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NO.	DATE	ENGINEER	DRAFTER	COMMENT



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ENGINEERING FIRM: MGC TECHNICAL CONSULTING INC.	
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