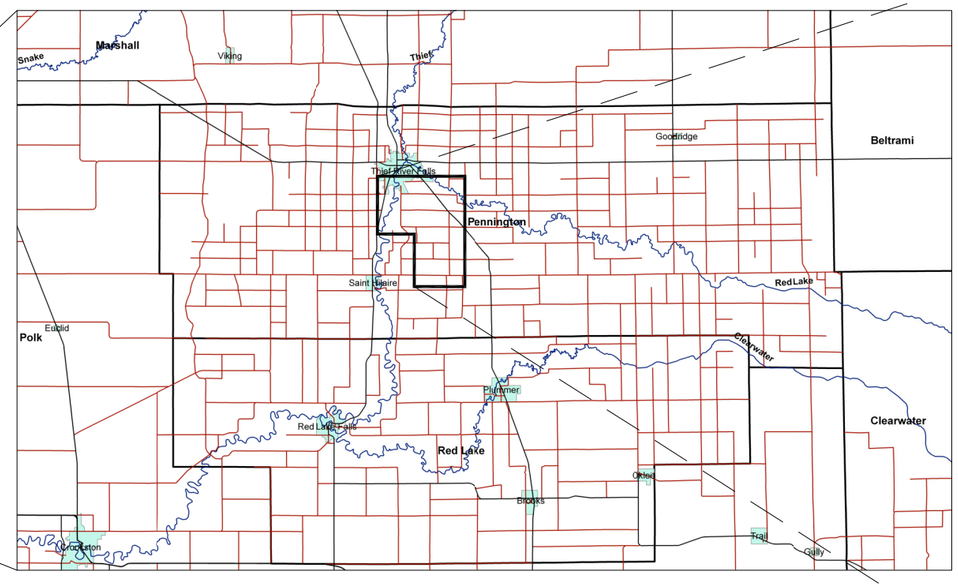
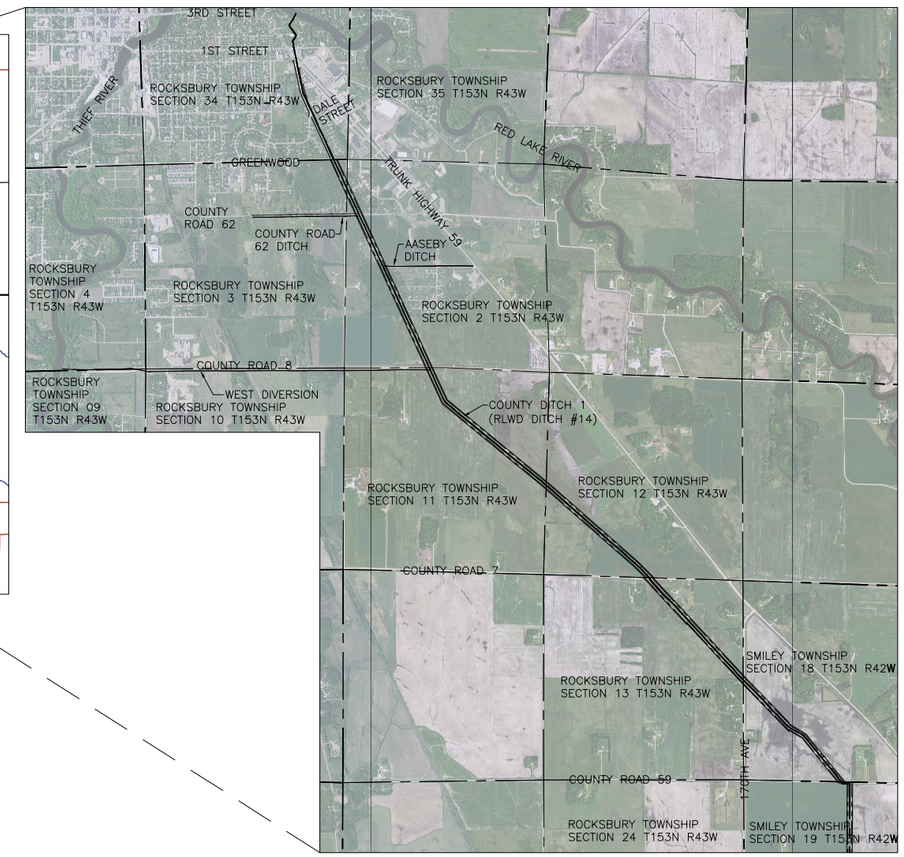
Construction Drawings for RED LAKE WATERSHED DISTRICT
Thief River Falls Flood Damage Reduction Project and Improvement to Pennington County Ditch #1 (RLWD Ditch #14)





INDEX

HDR

HDR Engineering, Inc.
324 Second Street East
Thief River Falls, MN 56701
Phone (218) 681–6100

AS-BUILT JANUARY 2013
HDR Project No. 131515

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager – P.E.

CIVIL MAPPING SYMBOLOGY

- EMBANKMENT SLOPE (CUT)
- EMBANKMENT SLOPE (FILL)
- H:V — EMBANKMENT SLOPE RIGHT ARROW RIGHT
- H:V — EMBANKMENT SLOPE LEFT ARROW LEFT
- 123 — SPOT ELEVATION/POINT #
- SURVEY BENCHMARK
- CP-X — SURVEY CONTROL POINT
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- SECTION CORNER MONUMENT
- SECTION CORNER NO MONUMENT
- X — IDENTIFICATION AND APPROXIMATE LOCATION OF SOIL TEST HOLE
- X — TEST PIT
- X — SOIL BORING
- BUOY
- FLOW ARROW
- WATER LEVEL IN SECTION/PROFILE
- TIDE GAUGE
- EXISTING UTILITY POLE
- DOWNGUY
- X — EXTERIOR UTILITY JUNCTION BOX
- XXX — INTERSTATE HIGHWAY SYMBOL
- XXX — US HIGHWAY SYMBOL
- XXX — STATE HIGHWAY SYMBOL
- HAY BALE SILT CHECK
- TEMPORARY SEDIMENT TRAP
- X — PIEZOMETER
- RR — RAIL SIGNAL
- RAIL SWITCH
- SIGN
- In — TIRE TREDDLE
- TRAFFIC ARM WITH CARD READER
- TRAFFIC ARM MECHANICAL SWING

- CO — CLEANOUT
- CO X — PROVIDE CLEANOUT
- CULVERT END SYMBOL (WITH CULVERT SHOWN BETWEEN SYMBOLS)
- FIRE HYDRANT
- X — PROVIDE FIRE HYDRANT
- F — FUEL OIL METER
- F — FUEL OIL MANHOLE
- F — FUEL OIL VAULT
- GT — GREASE TRAP
- GC — GRIT CHAMBER
- HEADWALL
- I — INDUSTRIAL WASTE WATER METER
- I — INDUSTRIAL WASTE WATER MANHOLE
- G — NATURAL GAS METER
- G — NATURAL GAS RECEIVER
- G — NATURAL GAS TRAP
- G — NATURAL GAS LINE VAULT
- MW — MONITORING WELL
- X — POST INDICATOR VALVE
- PS X — PUMP STATION
- S — SANITARY MANHOLE
- MH X — PROVIDE SANITARY MANHOLE
- ST — SEPTIC TANK
- X — TANK BELOW GROUND
- X — TANK HORIZONTAL ABOVE GROUND
- X — TANK VERTICAL ABOVE GROUND

- CB — STORM SQUARE CATCH BASIN
- CB — STORM ROUND CATCH BASIN
- D — STORM DRAINAGE MANHOLE
- D X — PROVIDE STORM DRAINAGE MANHOLE
- WATER/AIR VENT
- W — WATER BACKFLOW PREVENTER
- WATER BLOWOFF
- W — WATER METER
- S — WATER SHUTOFF
- WS — WATER SOFTENER
- W — WATER VALVE VAULT
- DOMESTIC WATER VALVE
- PROVIDE DOMESTIC WATER VALVE
- PD — PEDESTAL
- POWER BOX
- POLE
- STREET LIGHT
- WETLAND AVOIDANCE AREA

UTILITY/CIVIL LINE SYMBOLOGY

- PIPELINE
- LARGE PIPELINE
- UTILITY BENEATH STRUCTURE
- RAILROAD
- CENTERLINE
- BOTTOM OF DITCH
- PROPERTY LINE
- EASEMENT
- LIMITS OF CONSTRUCTION
- ROW
- EXISTING CONTOUR (MINOR)
- 25 — EXISTING CONTOUR W/ELEVATION (MAJOR)
- EXISTING FENCE
- EXISTING VEGETATION/BRUSH LINE
- X — FENCE – BARB WIRE
- FENCE – CHAIN LINK
- X — FENCE – FIELD
- FENCE – OTHER
- FENCE – WOOD
- XX — FENCE – WOVEN WIRE
- FLOOD LIMIT (25 YEAR)
- FLOOD LIMIT (50 YEAR)
- FLOOD LIMIT (100 YEAR)
- FLOOD LIMIT (200 YEAR)
- FLOOD LIMIT (500 YEAR)
- HIGHWAY GUARDRAIL
- LEVEE TOP
- LEVEE TOE
- NEW CONTOUR (MINOR)
- 25 — NEW CONTOUR (MAJOR)
- E u x — UNDERGROUND ELECTRICAL
- SF — SILT FENCE
- TOE OF SLOPE
- TOP OF SLOPE
- REMOVAL EXTENTS

- FIBER — FIBER OPTIC
- FUEL OIL
- GAS — NATURAL GAS
- INDUSTRIAL WASTE WATER
- SS — SANITARY SEWER
- SD — STORM SEWER
- W — DOMESTIC WATER
- OH ELEC — OVERHEAD ELECTRICAL
- STREET LIGHTS — STREET LIGHTS
- E — UNDERGROUND ELECTRICAL
- FIBER — WIKSTROM FIBER OPTIC
- FIBER — SJOBERGS FIBER OPTIC
- CABLE — SJOBERGS CABLE
- TEL — QWEST TELEPHONE
- PSS — PROVIDE SANITARY SEWER
- PW — PROVIDE DOMESTIC WATER
- PIPE REMOVAL

GENERAL NOTES:

1. THIS IS A STANDARD CIVIL SYMBOLOGY SHEET. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.

2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.

HDR

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Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	M. Peterson
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

SYMBOLOGY LEGEND

0 1/2" 1"

FILENAME	00C-LG00-01.dwg

SHEET L-1

N

SCALE IN FEET
0 750 1500

BENCHMARK & GPS CONTROL
MN / DOT GEODETIC DATA BASE STATION 23020
VERTICAL DATUM NAVD 88
NORTHING – 562400.973 (X)
EASTING – 310712.816 (Y)
ELEVATION – 1131.185 (Z)
COORDINATE SYSTEM – COUNTY COORDINATES

4.0 MILES SOUTHEAST OF THIEF RIVER FALLS, 4.7 MILES SOUTHEAST ON TRUNK HIGHWAY 59 FROM JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 32 AT THIEF RIVER FALLS, 3.2 FEET SOUTH OF WITNESS POST, 38.42 FEET NORTH OF REFERENCE MARK 1, 103 FEET SOUTHWEST OF TRUNK HIGHWAY 59 AT MILE POINT 353.8, 111.0 FEET EAST OF POLE, 142.6 FEET SOUTHEAST OF CABLE PEDESTAL.

LEGEND
RLWD #14 (COUNTY DITCH 1) IMPROVEMENT
TRF FLOOD DAMAGE REDUCTION PROJECT

ALIGNMENT NAME	STATION
COUNTY DITCH 1	0+00 TO 285+97
CHALLENGER DIVERSION	300+00 TO 397+21
AASEBY DITCH	500+00 TO 523+80
WEST COUNTY ROAD 62 NORTH DITCH	700+00 TO 728+27
WEST COUNTY ROAD 62 SOUTH DITCH	800+00 TO 827+98
EAST COUNTY ROAD 62 NORTH DITCH	1000+00 TO 1011+83
EAST COUNTY ROAD 62 SOUTH DITCH	1100+00 TO 1114+97

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PROJECT MANAGER	Nate Dalager
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DESIGNED	R. Knott
CHECKED	M. Peterson
CHECKED	M. Redington
DRAWN	
DRAWN	
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THIEF RIVER FALLS, MN
56701 (218) 681-5800

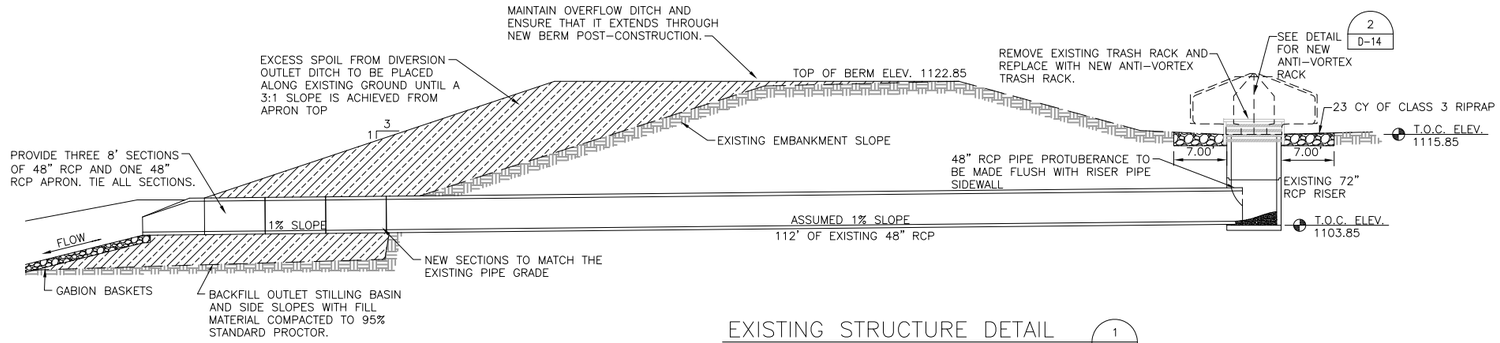
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

TRF FLOOD DAMAGE REDUCTION PROJECT AND RLWD DITCH #14 SITE PLAN AND R.O.W. AS-BUILT - JANUARY 2013

0 1/2" 1"

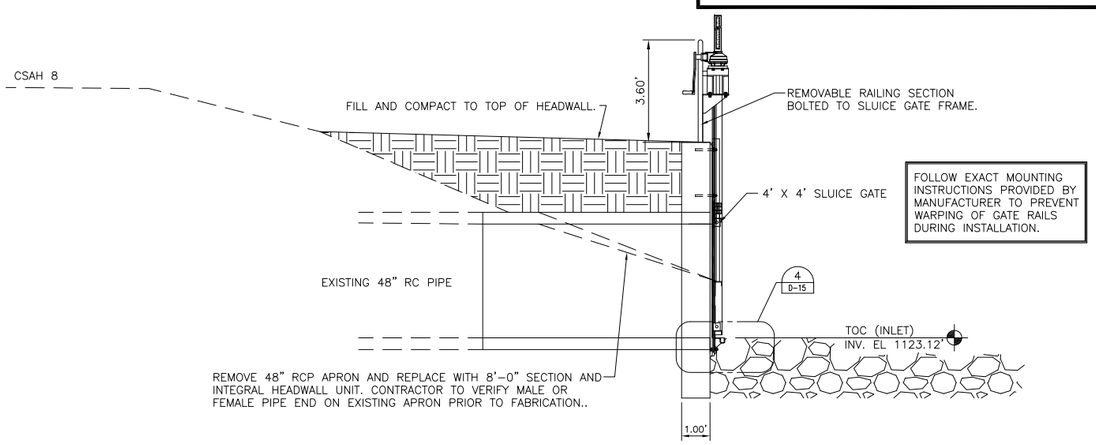
FILENAME	00C-SP-01.dwg

SHEET C-1

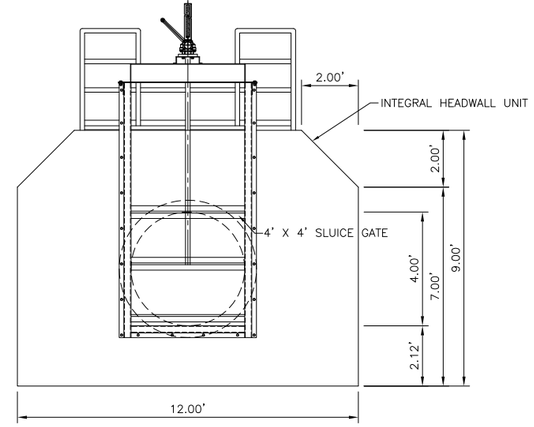


EXISTING STRUCTURE DETAIL (1 / D-15)
SCALE: 1" = 20'-0"

SEE PAGE D-16 FOR DIVERSION STRUCTURE DESIGN MODIFICATION DETAILS

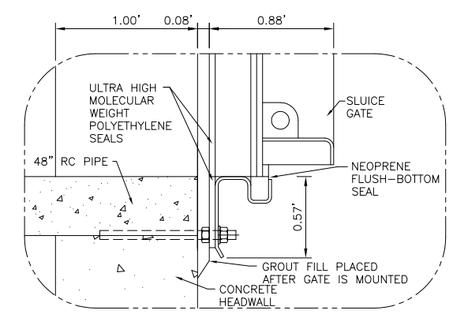


DETAIL (2 / D-15)
SCALE: 3/16" = 1'-0"
STA. 102+97



END VIEW (3 / D-15)
SCALE: 3/16" = 1'-0"

NOTE:
ALL DIMENSIONS TO BE VERIFIED WITH SLUICE GATE MANUFACTURER



DETAIL (4 / D-15)
NTS

HDR
HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	M. Peterson
DESIGNED	R. Knott
CHECKED	G. Hufnagle
CHECKED	M. Redington
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

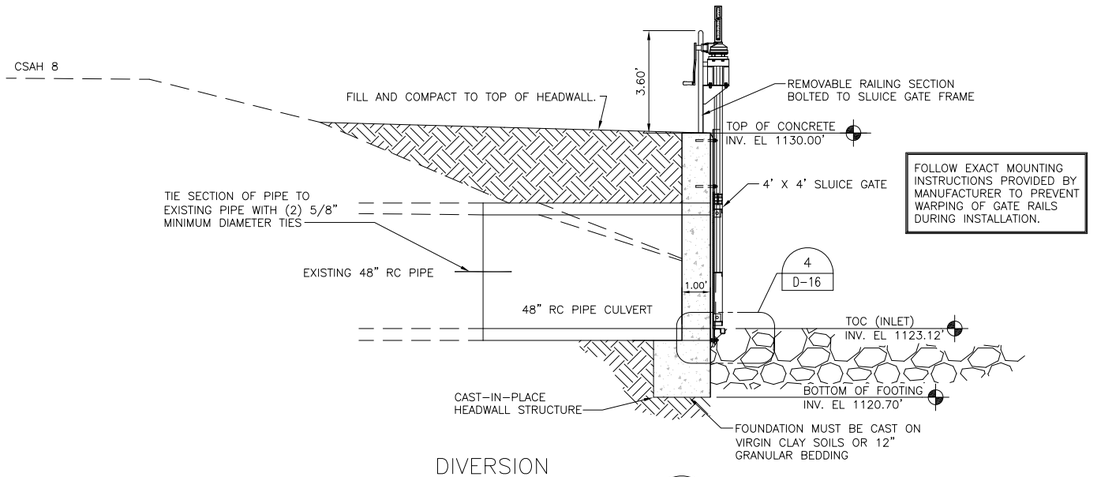
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

TRF FLOOD DAMAGE REDUCTION PROJECT
DIVERSION STRUCTURE AND EXISTING OUTLET STRUCTURE MODIFICATIONS
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-DT02-05.dwg

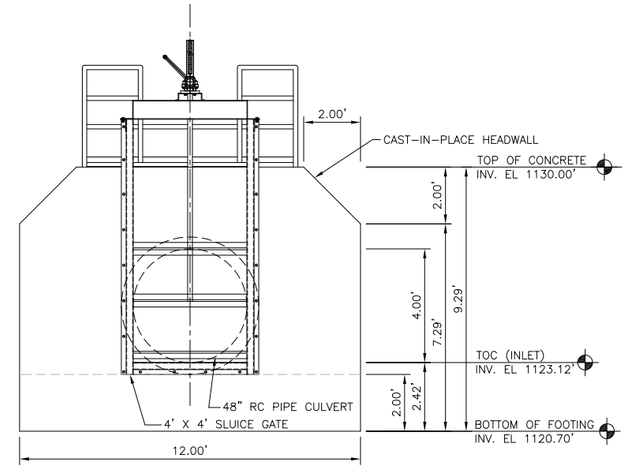
SHEET D-15



FOLLOW EXACT MOUNTING INSTRUCTIONS PROVIDED BY MANUFACTURER TO PREVENT WARPING OF GATE RAILS DURING INSTALLATION.

DIVERSION STRUCTURE DETAIL (2 / D-16)

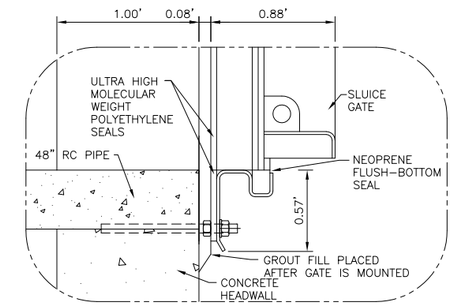
SCALE: 3/16" = 1'-0"
STA. 102+97



END VIEW (3 / D-16)

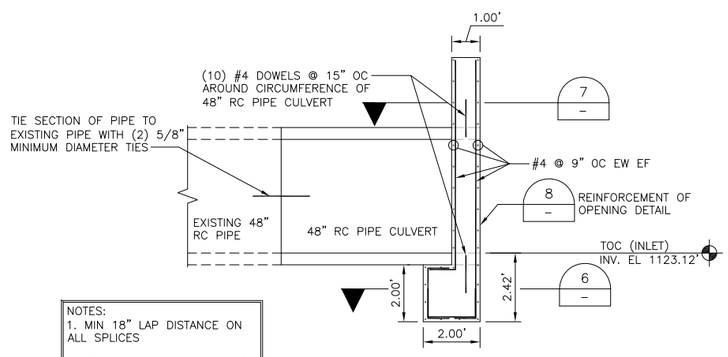
SCALE: 3/16" = 1'-0"

NOTE:
ALL DIMENSIONS TO BE VERIFIED WITH SLUICE GATE MANUFACTURER



DETAIL (4 / D-16)

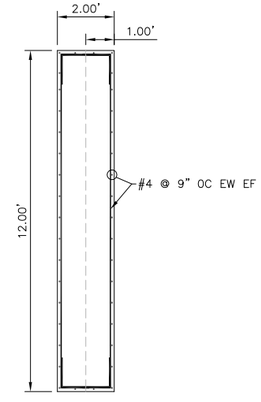
NTS



NOTES:
1. MIN 18" LAP DISTANCE ON ALL SPLICES
2. #4 DOWELS EMBEDDED 12" MIN AROUND RC PIPE CULVERT

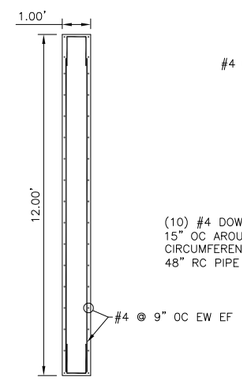
DIVERSION STRUCTURE REINFORCEMENT SECTION (5 / D-16)

SCALE: 3/16" = 1'-0"



SECTION (6 / –)

SCALE: 3/16" = 1'-0"



SECTION (7 / –)

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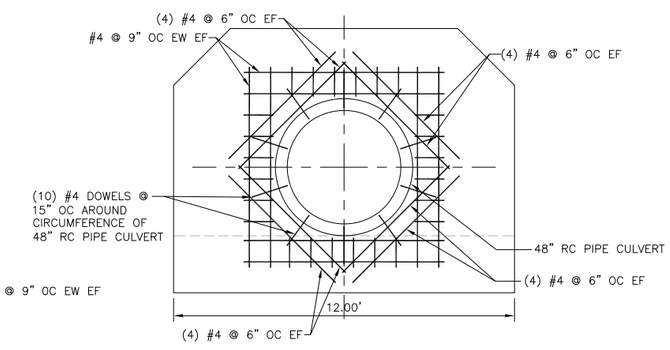

REINFORCEMENT OF OPENING DETAIL (8 / –)

SCALE: NOT TO SCALE

CONSTRUCTION NOTES:
1. LAST SECTION OF 48" RC PIPE CULVERT MUST BE TIED TO EXISTING RC PIPE WITH (2) 5/8" MINIMUM DIAMETER PIPE TIES
2. CAST-IN-PLACE HEADWALL FOUNDATION SHALL BE CAST ON VIRGIN CLAY SOILS OR 12" GRANULAR BEDDING (MN/DOT SPECIFICATION 3149.2F)
3. CONCRETE: MUST MEET MN/DOT SPECIFICATION 2461, MIX DESIGN 3Y44
4. CHAMFER ALL CONCRETE EDGES 3/4" MIN
5. CONCRETE COVER OVER REINFORCEMENT: 1 1/2" MIN
6. CONCRETE REINFORCING: ASTM A615, GRADE 60 DEFORMED BARS
7. CONCRETE REINFORCING MINIMUM BEND RADIUS: 3"
8. LAP SPLICE AND DEVELOPMENT LENGTH: 18" MIN
9. WELDING: MINIMUM 1/4" FILLET WELD UNLESS OTHERWISE SPECIFIED.

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Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION
	09/17/2012	CHANGE ORDER TO CAST-IN-PLACE STRUCTURE

PROJECT MANAGER	NATHAN P. DALAGER
DESIGNED	B. HAUTH
DESIGNED	R. KNOTT
CHECKED	N. DALAGER
CHECKED	
DRAWN	B. HAUTH
DRAWN	
PROJECT NUMBER	131515

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

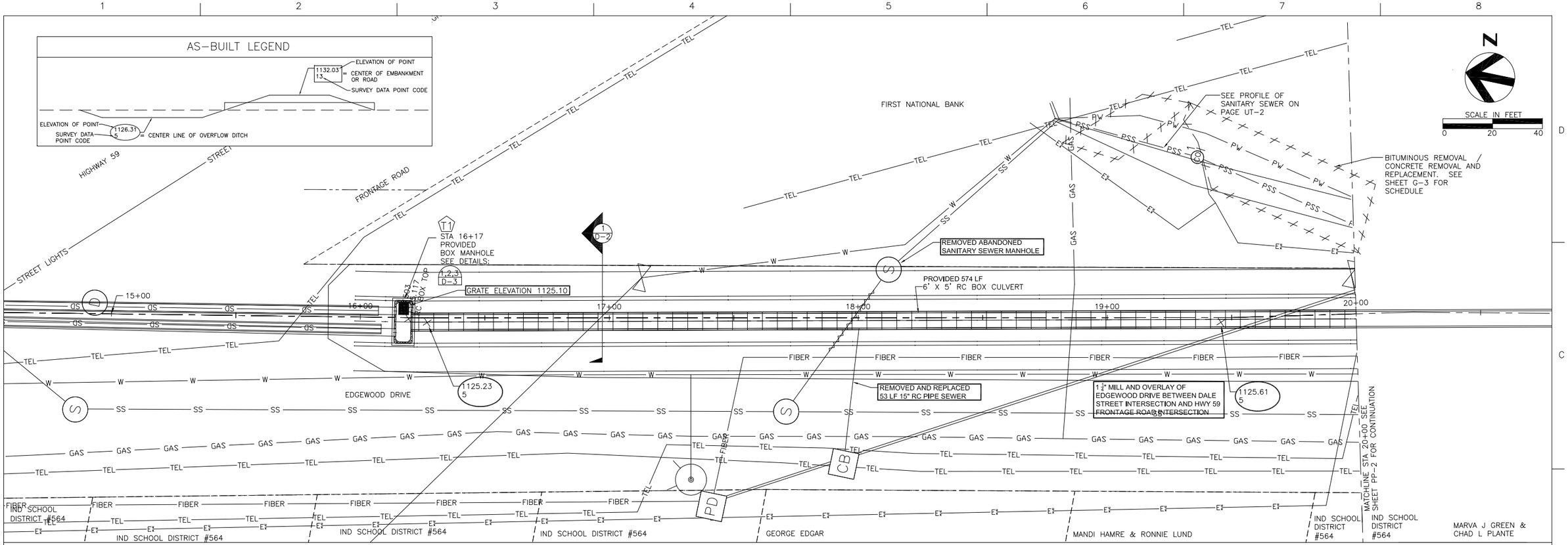
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

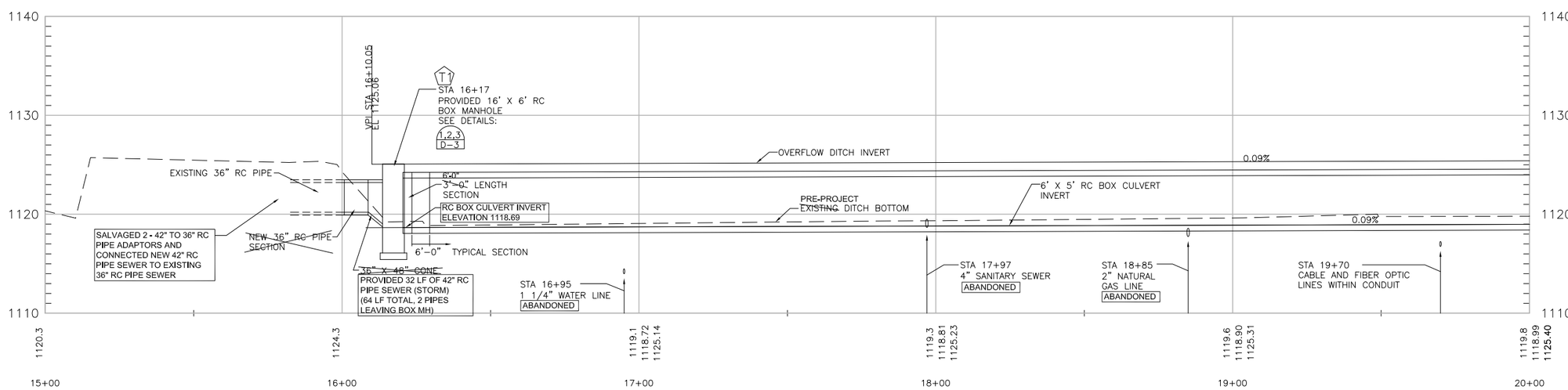
TRF FLOOD DAMAGE REDUCTION PROJECT
DIVERSION STRUCTURE
AS-BUILT - JANUARY 2013

0 1/2" 1"

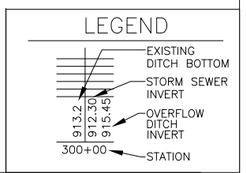
FILENAME 00C-DT02-06.dwg

SHEET D-16





NOTE:
SEE UT-1 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
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DESIGNED	M. Peterson
CHECKED	R. Knott
CHECKED	M. Redington
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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THIEF RIVER FALLS, MN
56701 (218) 681-5800

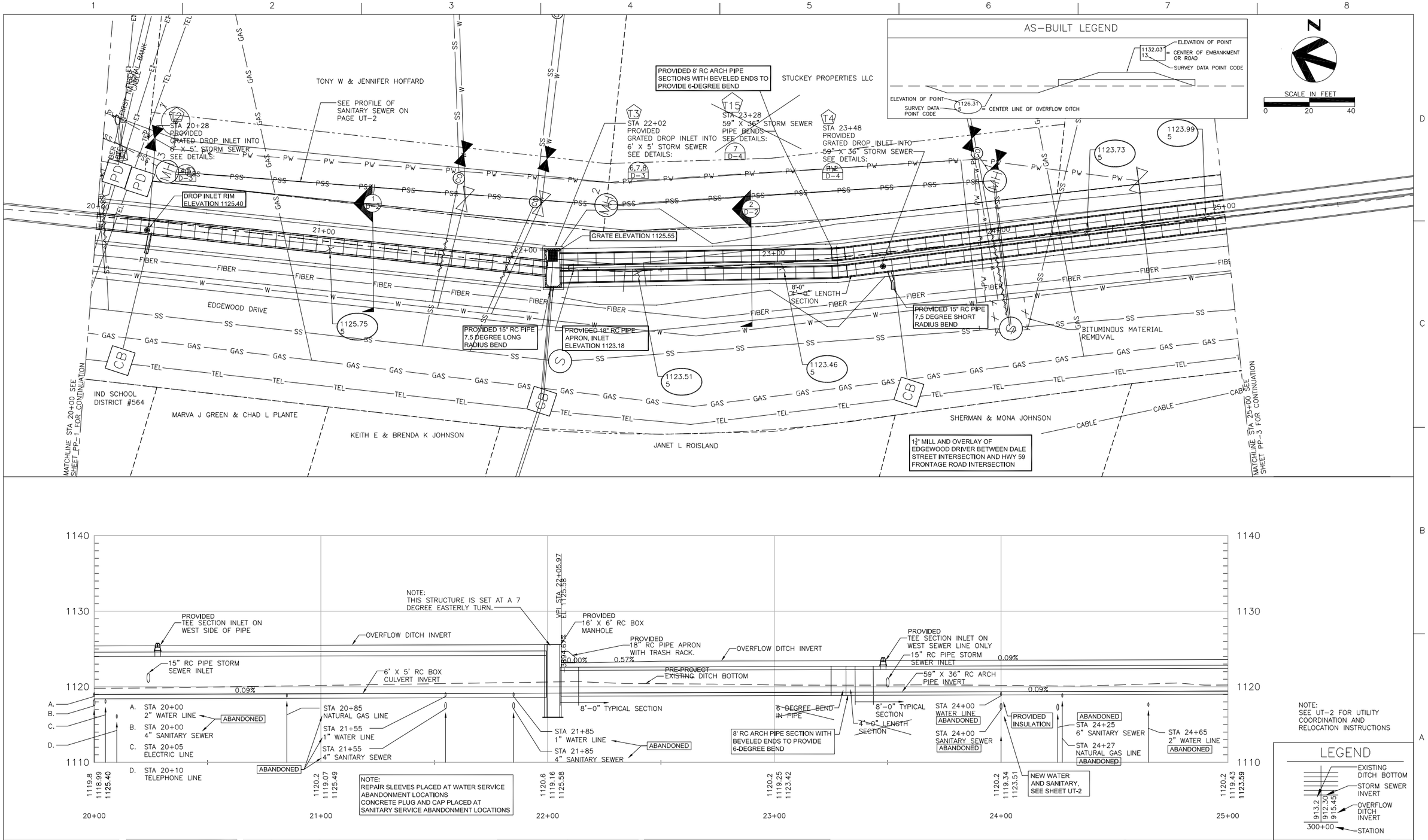
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

RLWD DITCH #14
STORM SEWER PLAN AND PROFILE
STA 15+00 TO 20+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-PP05-01.dwg

SHEET PP-1



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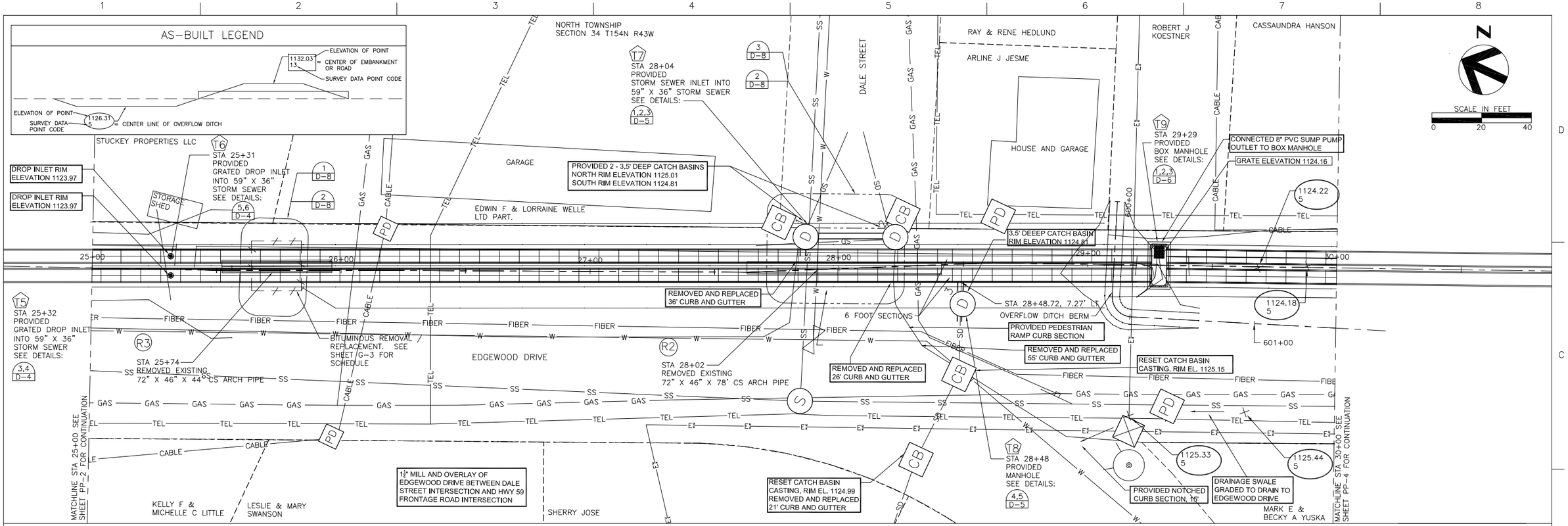
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

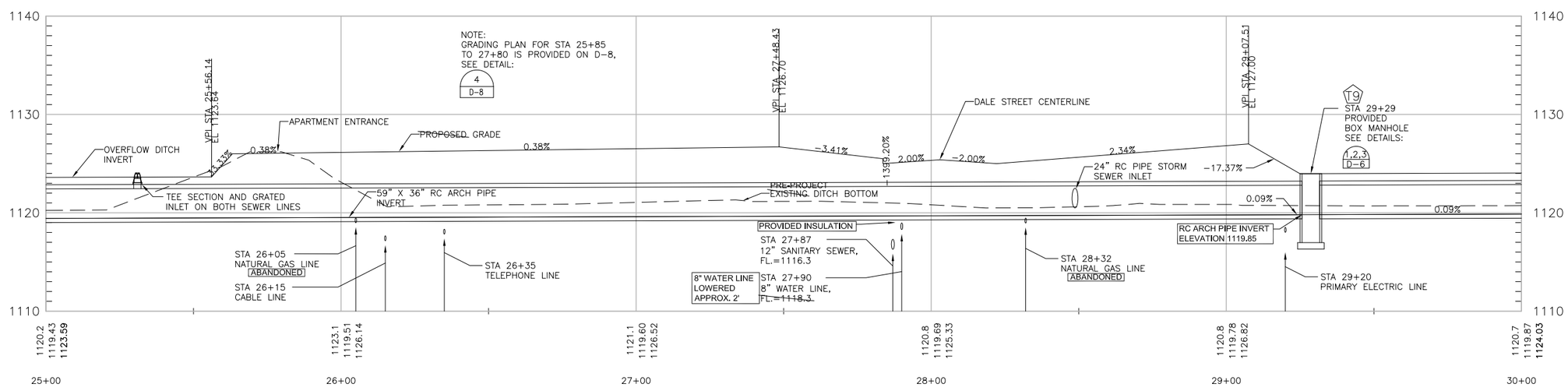
RLWD DITCH #14
STORM SEWER PLAN AND PROFILE
STA 20+00 TO 25+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-PP05-02.dwg

SHEET PP-2





NOTE:
SEE UT-3 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND

- EXISTING DITCH BOTTOM
- STORM SEWER INVERT
- OVERFLOW DITCH INVERT
- STATION

913.2 912.30 915.45 300+00

HDR

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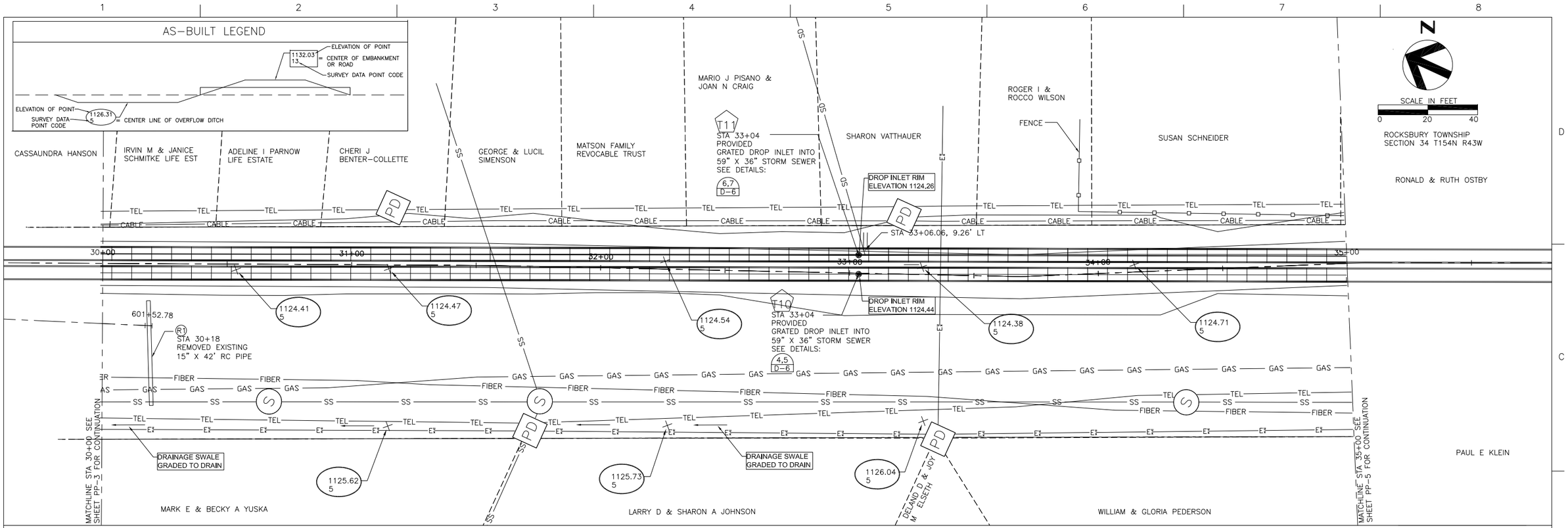
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

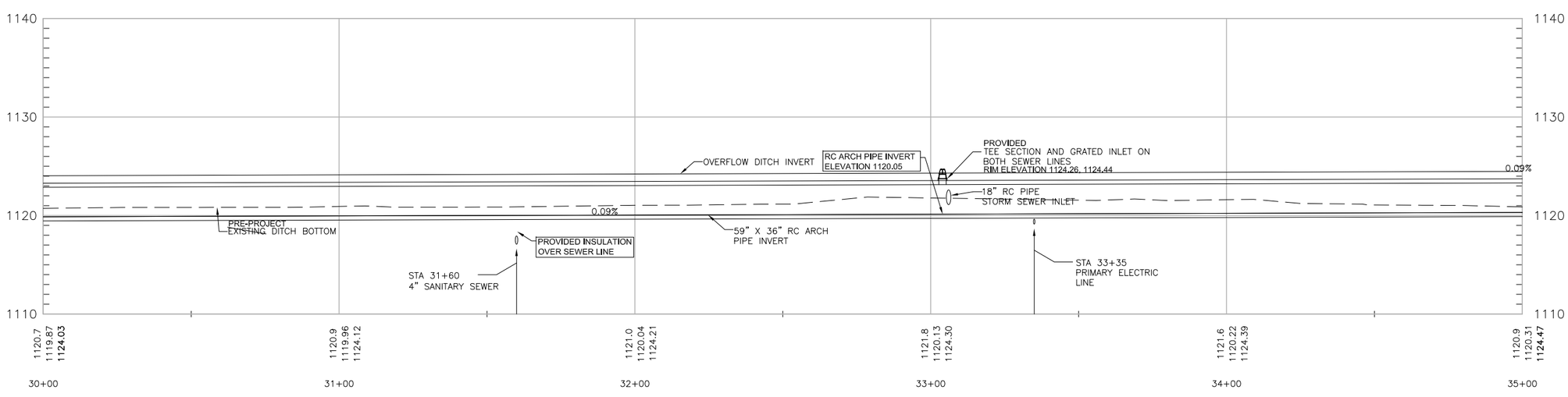
RLWD DITCH #14
STORM SEWER PLAN AND PROFILE
STA 25+00 TO 30+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

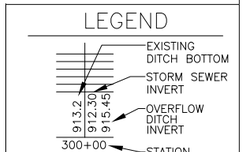
FILENAME	00C-PP05-03.dwg

SHEET PP-3





NOTE:
SEE UT-4 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	M. Peterson
CHECKED	R. Knott
CHECKED	M. Redington
DRAWN	
DRAWN	
PROJECT NUMBER	131515

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

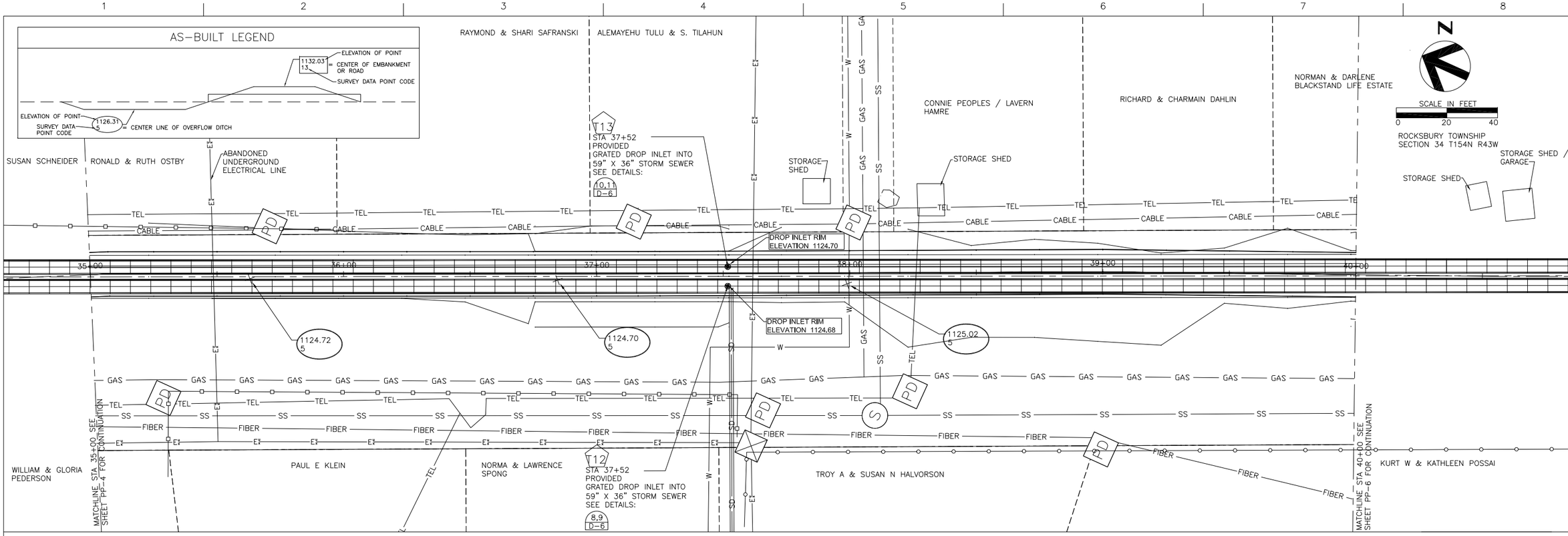
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

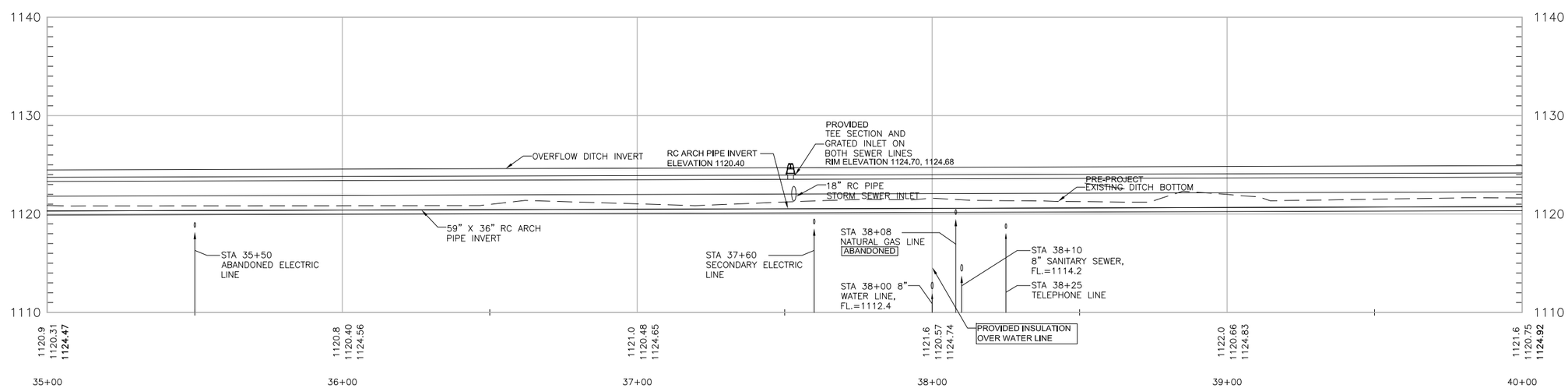
RLWD DITCH #14
STORM SEWER PLAN AND PROFILE
STA 30+00 TO 35+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

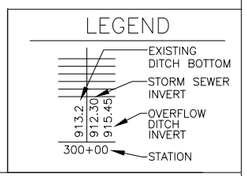
FILENAME	00C-PP05-04.dwg

SHEET PP-4





NOTE:
SEE UT-5 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



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Nathan P. Dalager

Red Lake Watershed District

1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

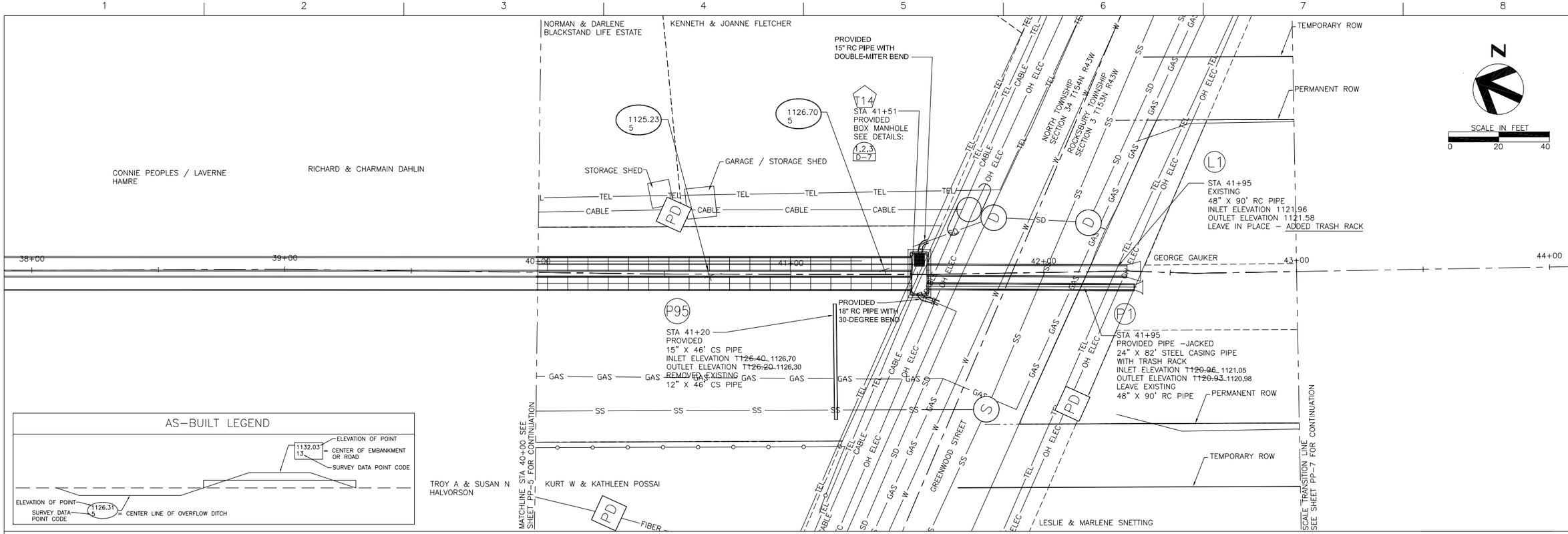
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

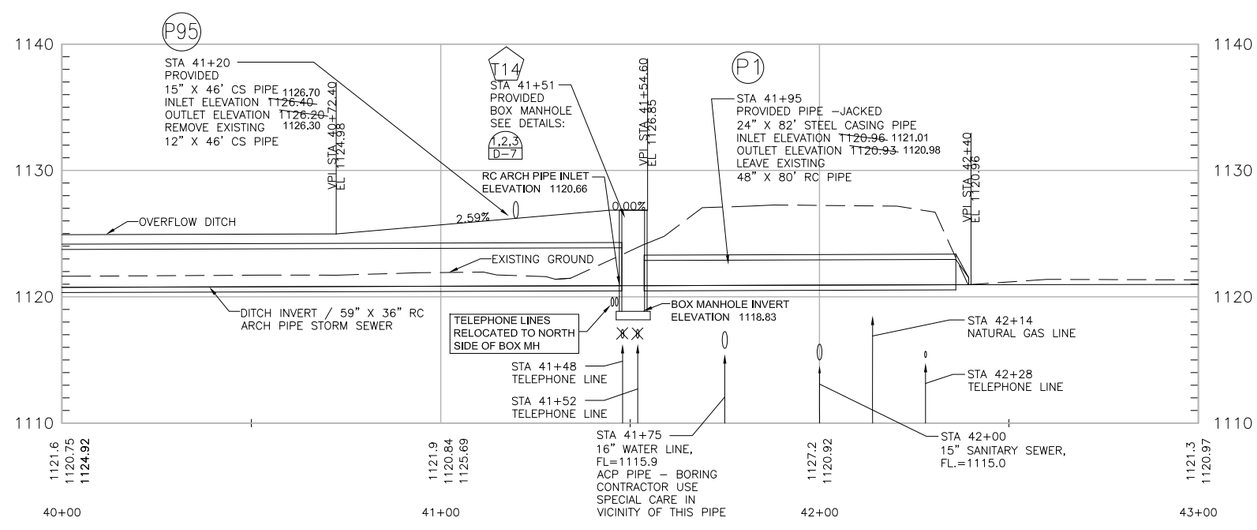
RLWD DITCH #14
STORM SEWER PLAN AND PROFILE
STA 35+00 TO 40+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

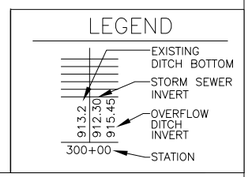
FILENAME	00C-PP05-05.dwg

SHEET
PP-5





NOTE:
SEE UT-6 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



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PROJECT NUMBER	131515

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1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

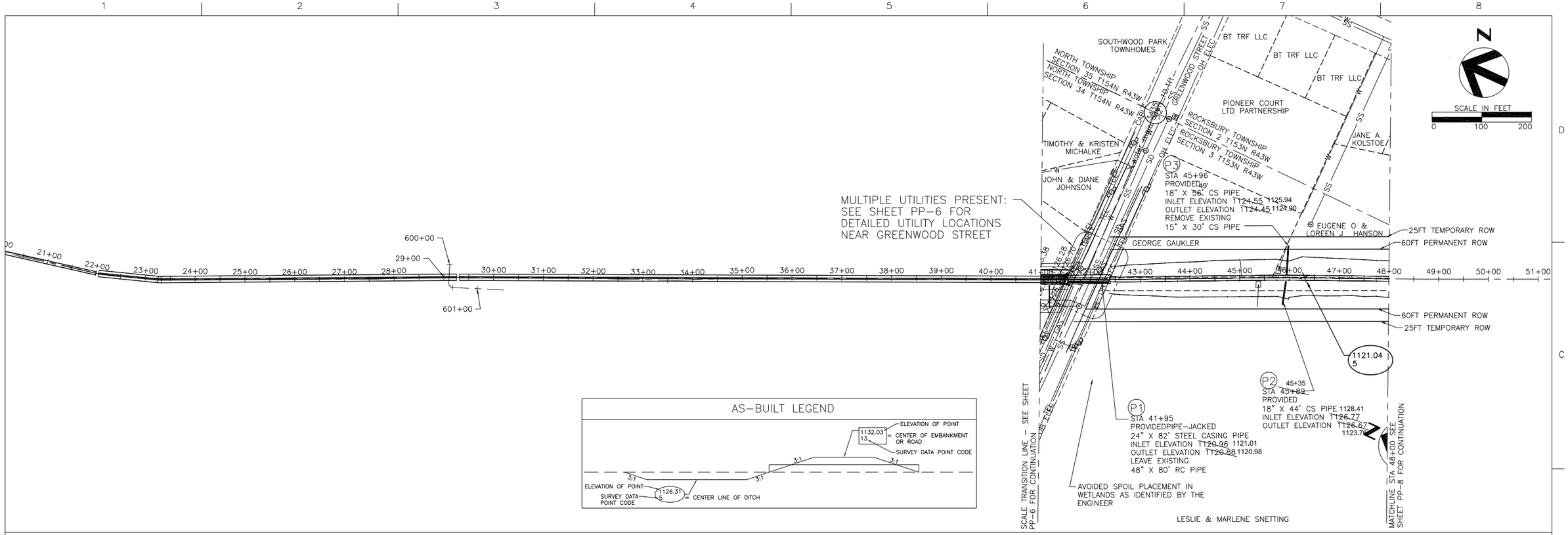
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

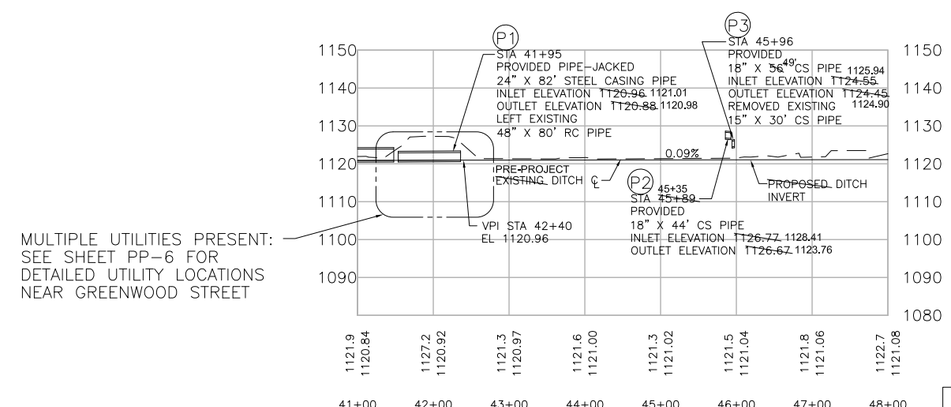
RLWD DITCH #14
STORM SEWER PLAN AND PROFILE
STA 40+00 TO 43+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

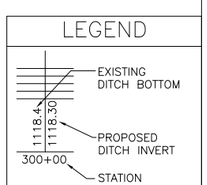
FILENAME	00C-PP05-06.dwg

SHEET PP-6





MULTIPLE UTILITIES PRESENT: SEE SHEET PP-6 FOR DETAILED UTILITY LOCATIONS NEAR GREENWOOD STREET



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THIEF RIVER FALLS, MN
56701 (218) 681-5800

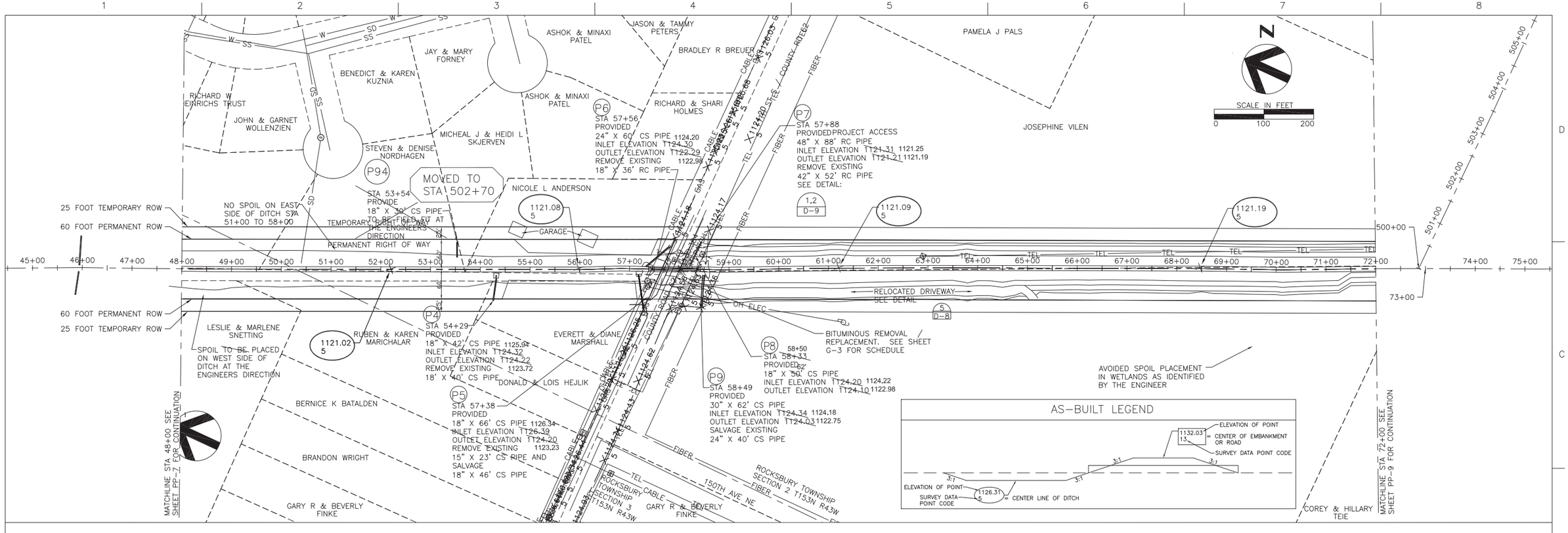
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

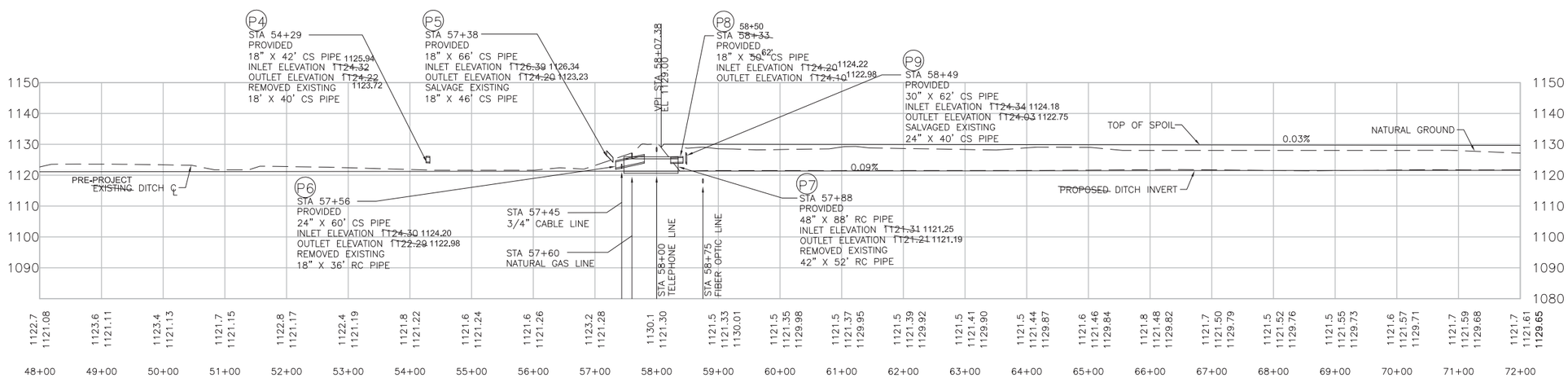
RLWD DITCH #14
PLAN AND PROFILE
STA 41+00 TO 48+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-PP01-02.dwg

SHEET PP-7





NOTE:
SEE UT-8 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND

- EXISTING DITCH BOTTM
- 1118.4 / 1118.30 / 125.15 — SPOIL TOP ELEVATION
- 300+00 — STATION
- PROPOSED DITCH INVERT

HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	R. Knott
DESIGNED	G. Hufnagle
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

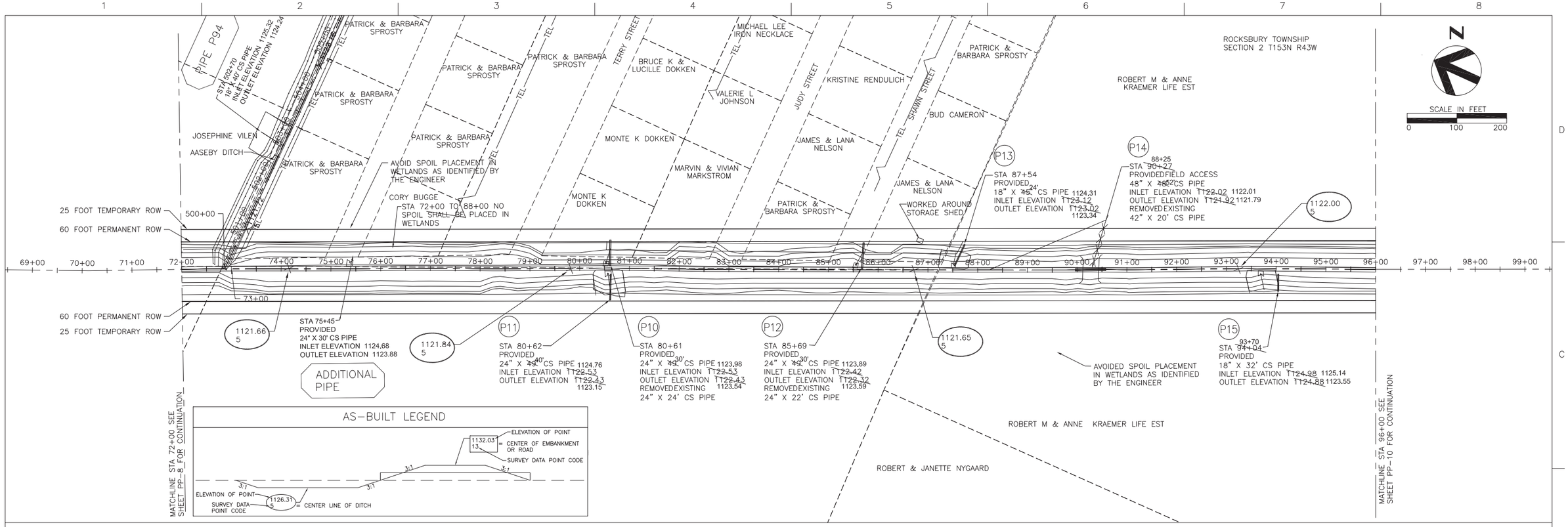
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

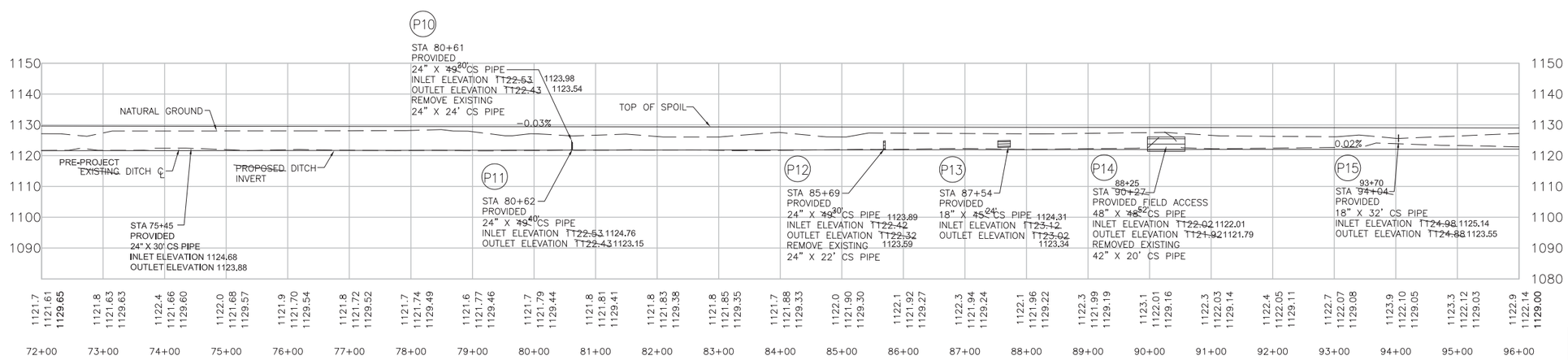
RLWD DITCH #14
PLAN AND PROFILE
STA 48+00 TO 72+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

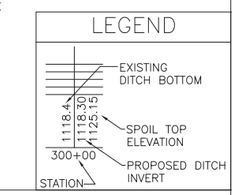
FILENAME	00C-PP01-03.dwg

SHEET
PP-8





NOTE:
SEE UT-9 FOR UTILITY COORDINATE AND RELOCATION INSTRUCTIONS



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CHECKED	
DRAWN	
DRAWN	
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56701 (218) 681-5800

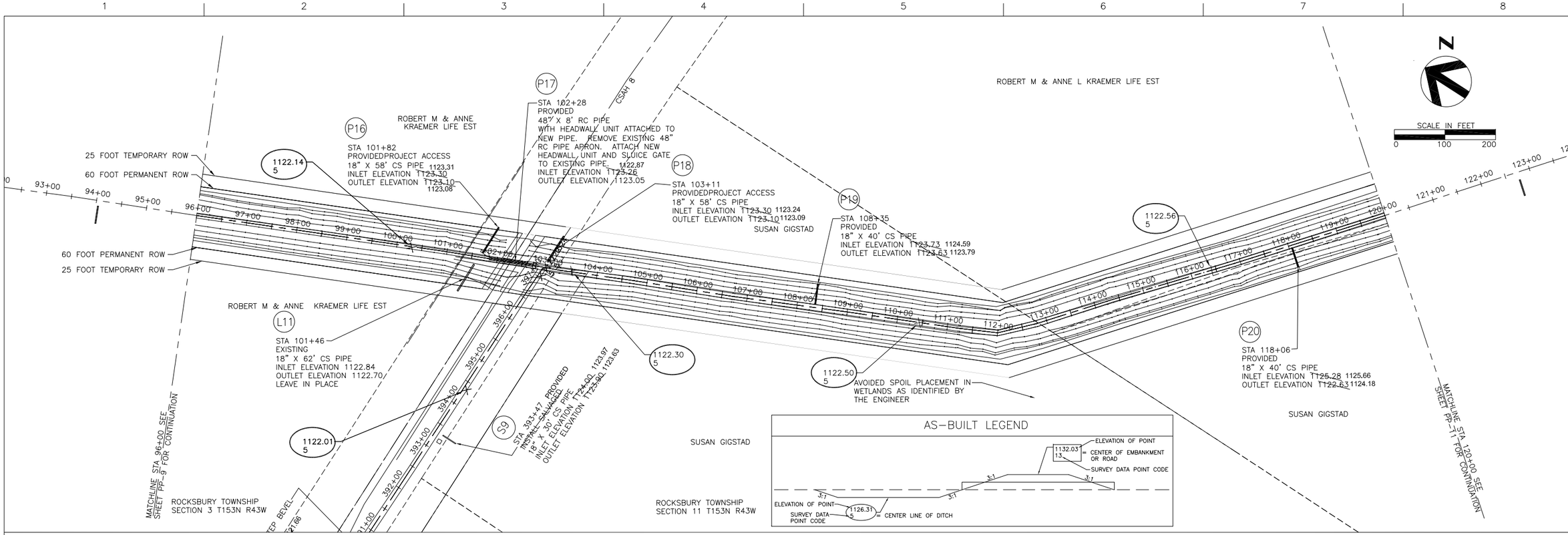
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

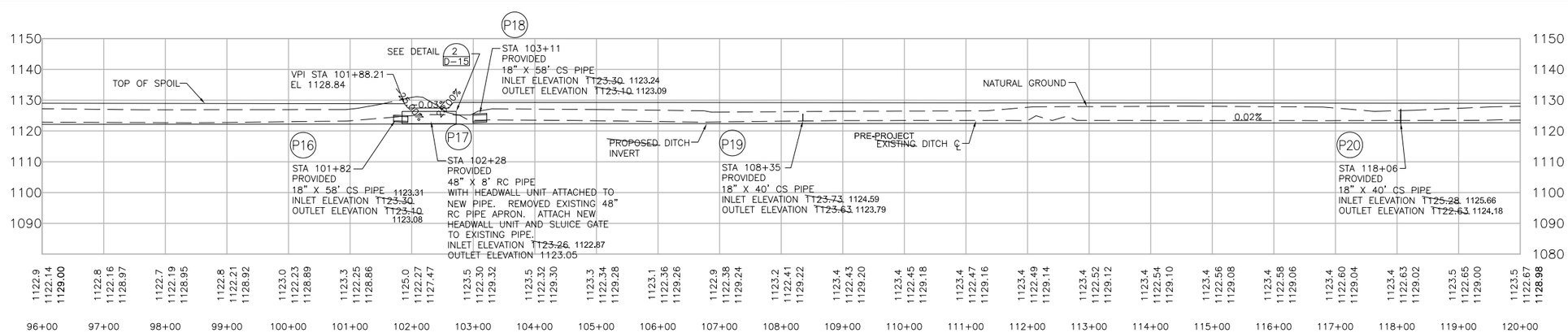
RLWD DITCH #14
PLAN AND PROFILE
STA 72+00 TO 96+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-PP01-04.dwg

SHEET PP-9





NOTE:
SEE UT-10 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND

EXISTING DITCH BOTTOM

1118.4 / 1118.30 / 1125.15 — SPOIL TOP ELEVATION

300+00 STATION — PROPOSED DITCH INVERT

HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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Nathan P. Dalager

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Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

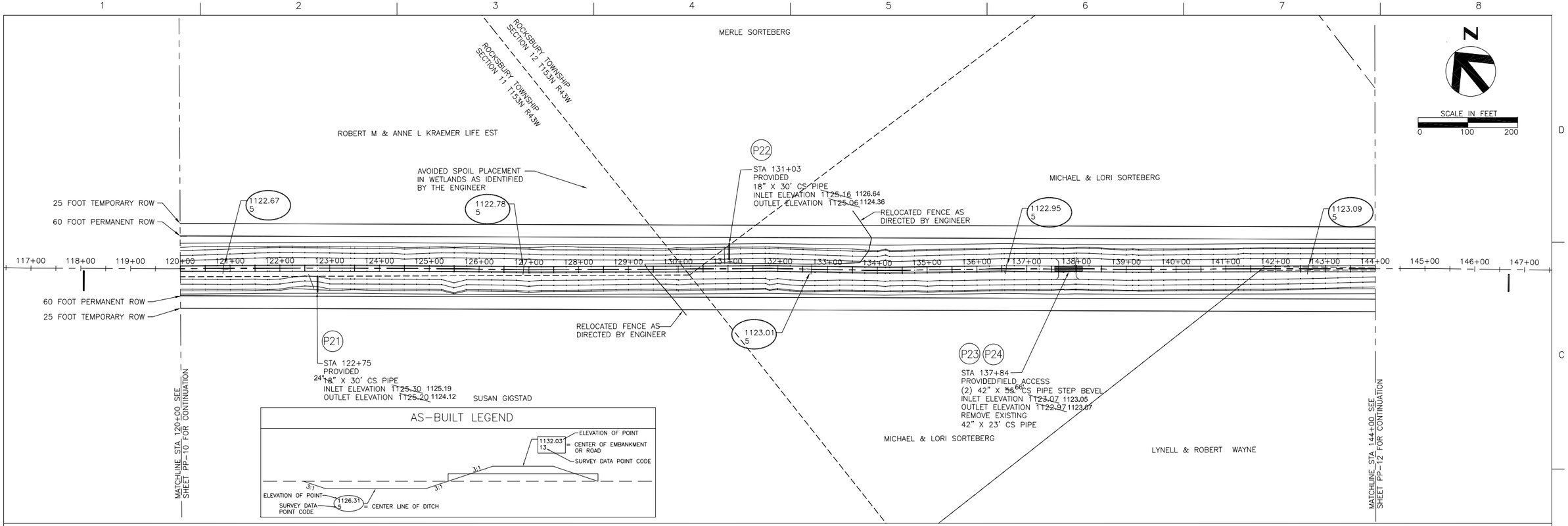
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

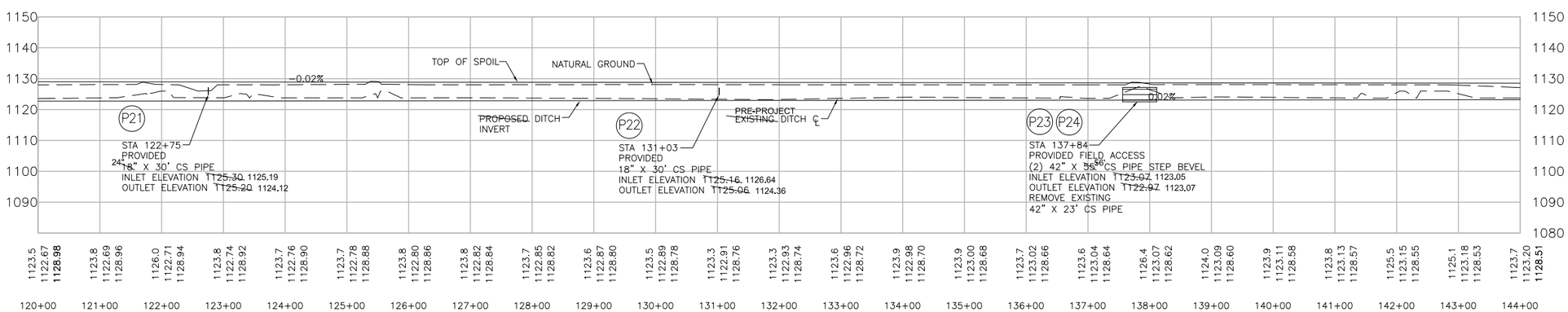
RLWD DITCH #14
PLAN AND PROFILE
STA 96+00 TO 120+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-PP01-05.dwg

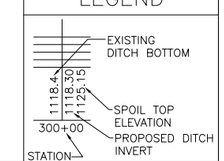
SHEET PP-10





NOTE:
SEE UT-11 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND



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CHECKED	
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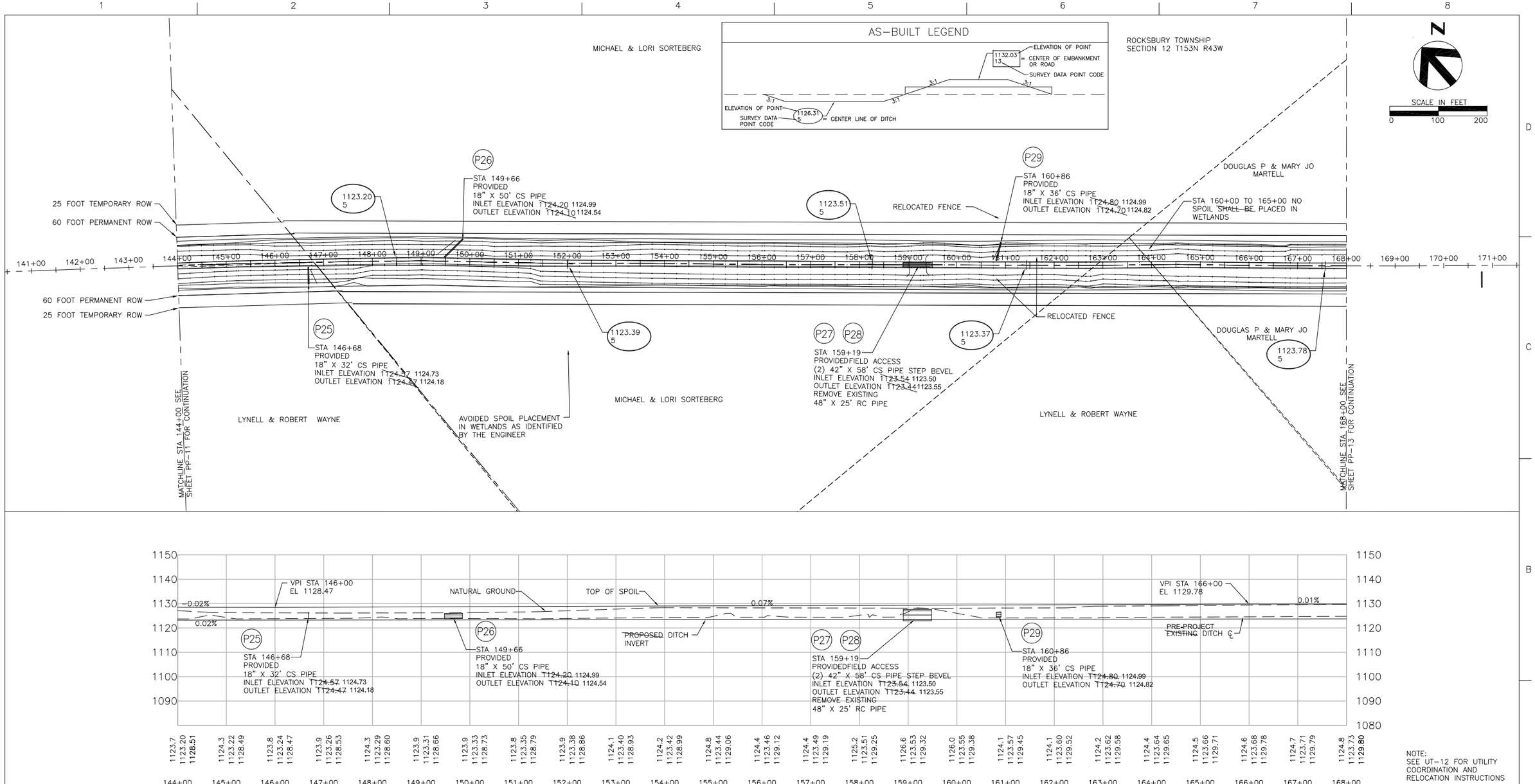
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

RLWD DITCH #14
PLAN AND PROFILE
STA 120+00 TO 144+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-PP01-06.dwg

SHEET
PP-11



NOTE:
SEE UT-12 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND

- EXISTING DITCH BOTTOM
- 1118.4 / 1118.30 / 1125.15 — SPOIL TOP ELEVATION
- 300+00 — STATION
- PROPOSED DITCH INVERT

HDR

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Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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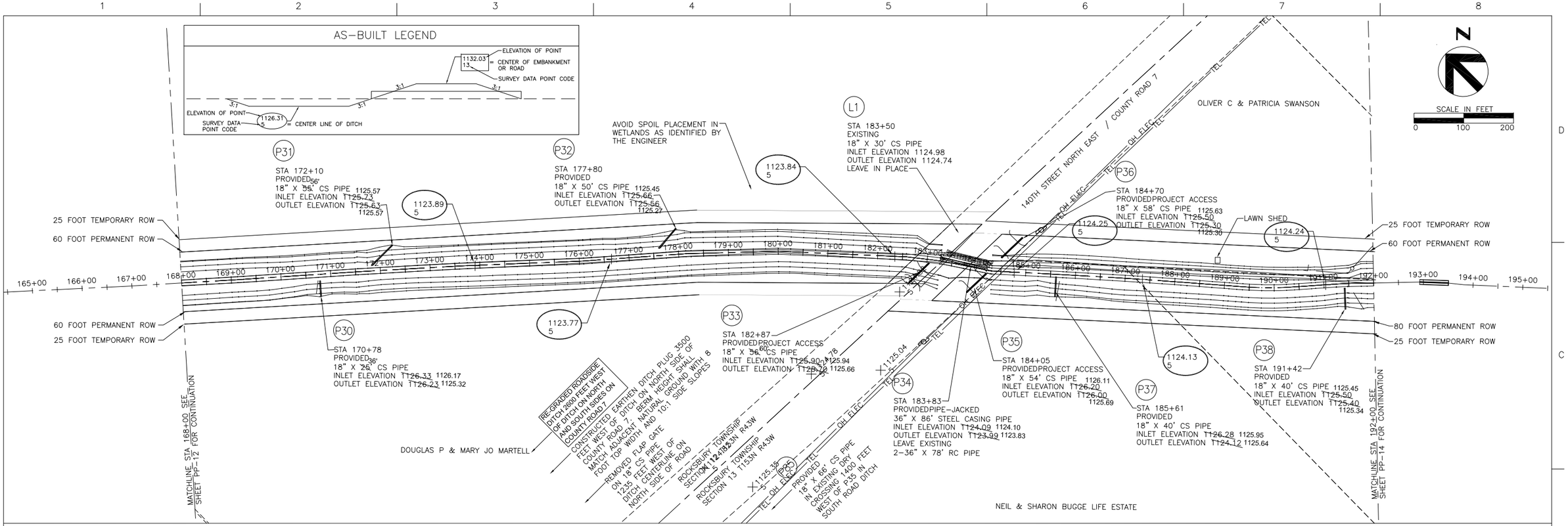
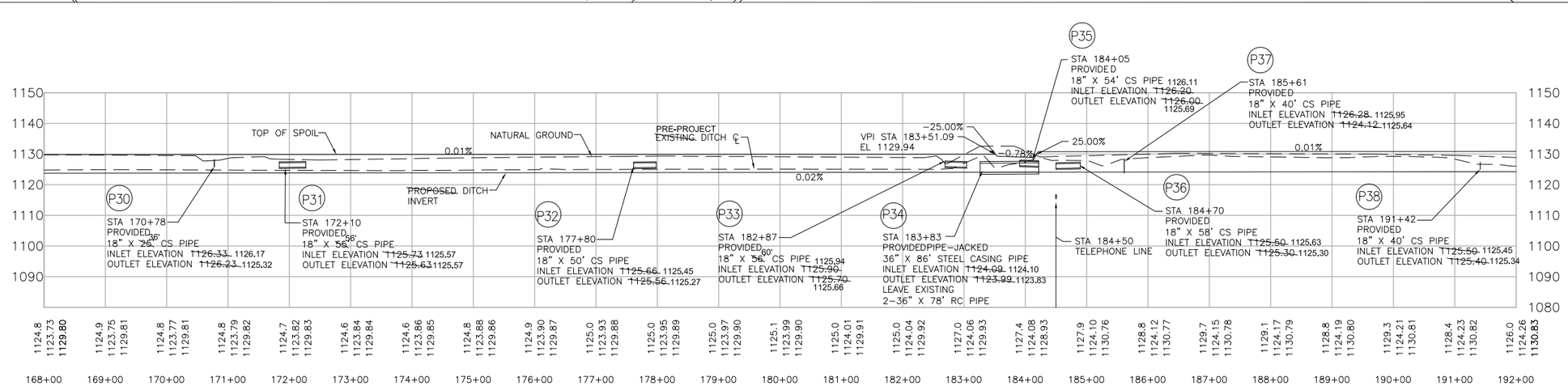
RLWD DITCH #14
PLAN AND PROFILE
STA 144+00 TO 168+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-PP01-07.dwg

SHEET
PP-12





NOTE:
SEE UT-13 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND

EXISTING DITCH BOTTOM

1118.4 1118.30 1125.15 — SPOIL TOP ELEVATION

300+00 STATION — PROPOSED DITCH INVERT

HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

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DESIGNED	G. Hufnagle
DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
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56701 (218) 681-5800

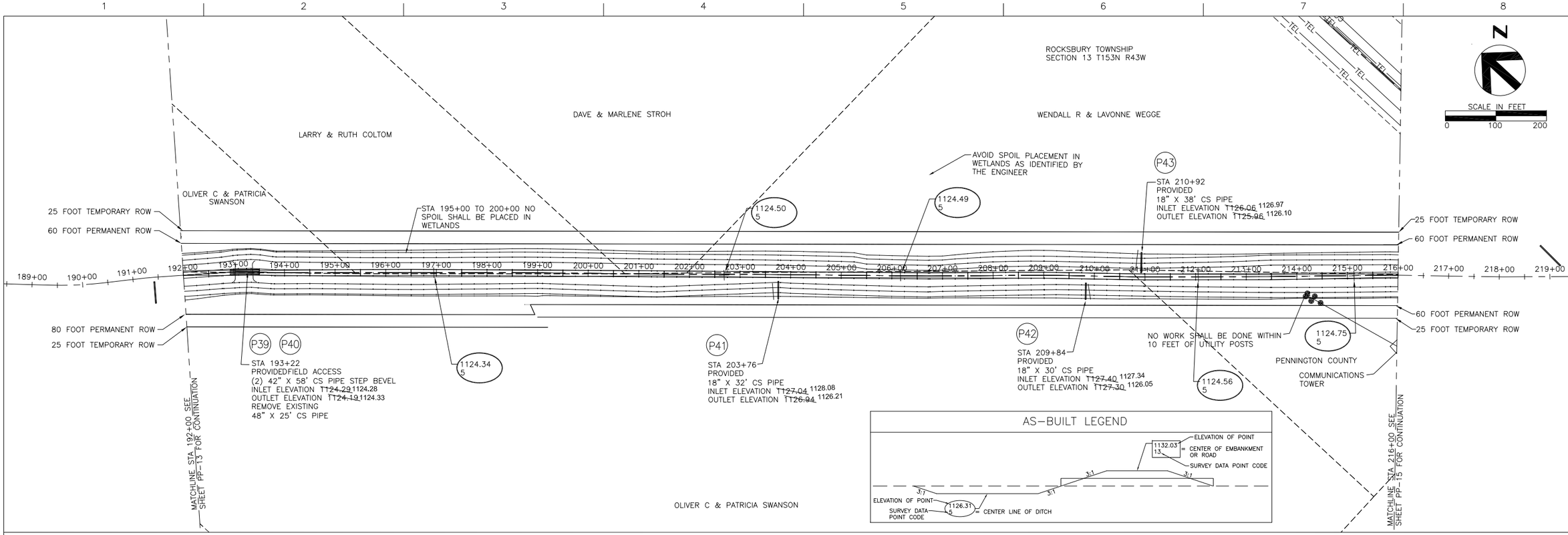
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

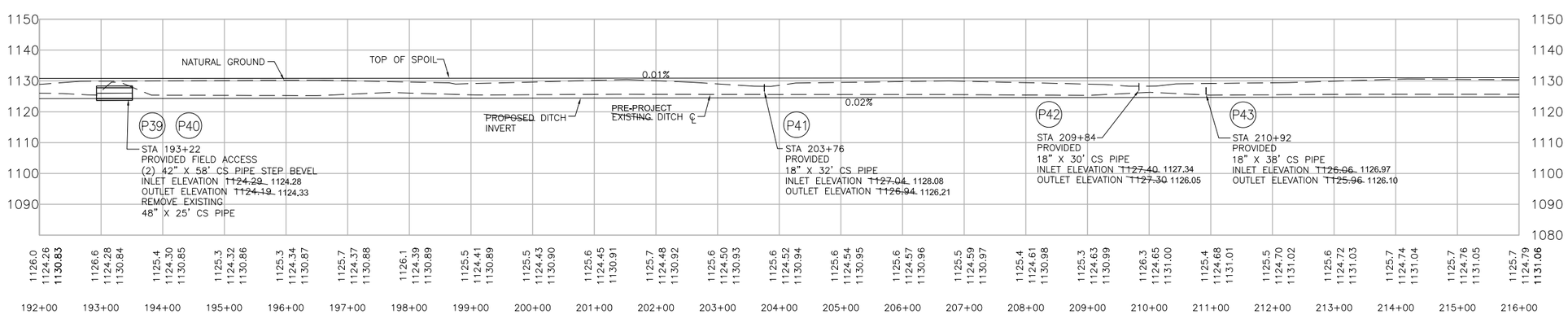
RLWD DITCH #14
PLAN AND PROFILE
STA 168+00 TO 192+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-PP01-08.dwg

SHEET PP-13





NOTE:
SEE UT-14 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND

EXISTING DITCH
1118.4
1118.30
1125.15
OVER FLOW DITCH ELEVATION
300+00
STATION
DITCH ELEVATION

HDR

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Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

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DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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56701 (218) 681-5800

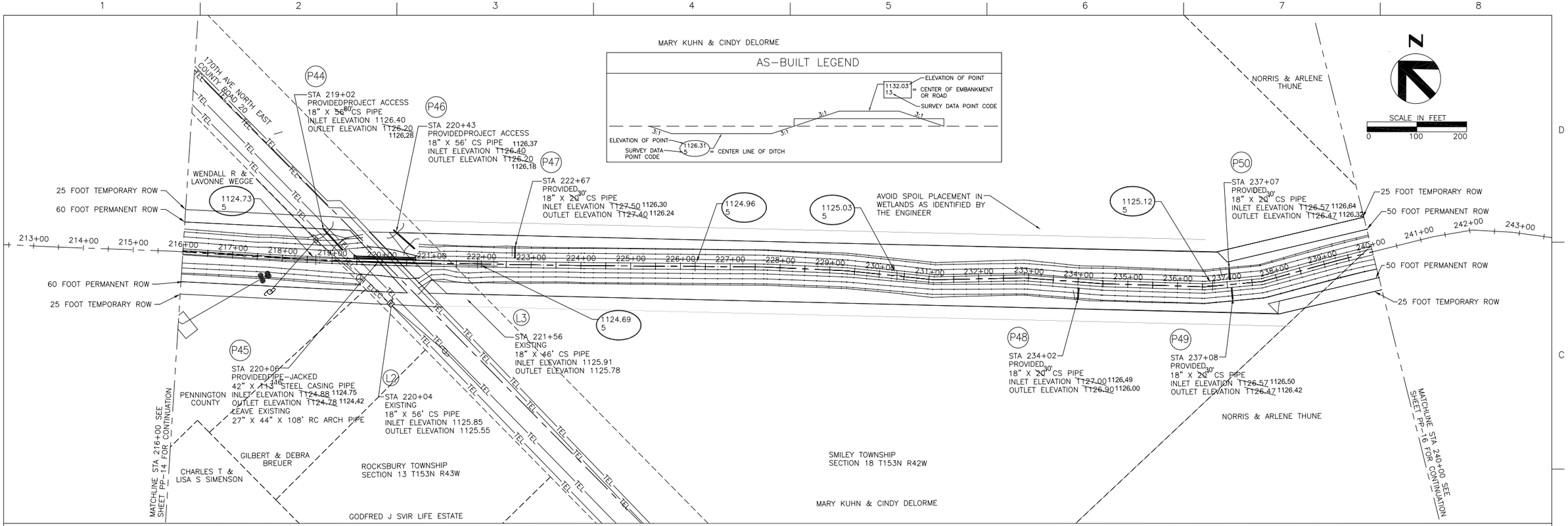
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

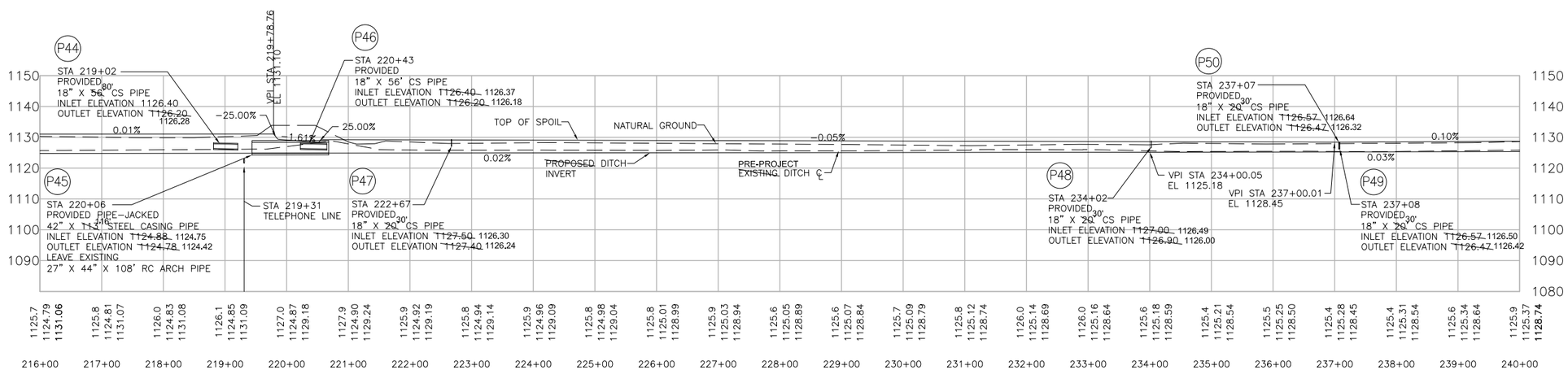
RLWD DITCH #14
PLAN AND PROFILE
STA 192+00 TO 216+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

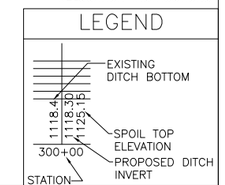
FILENAME	00C-PP01-09.dwg

SHEET
PP-14





NOTE:
SEE UT-15 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

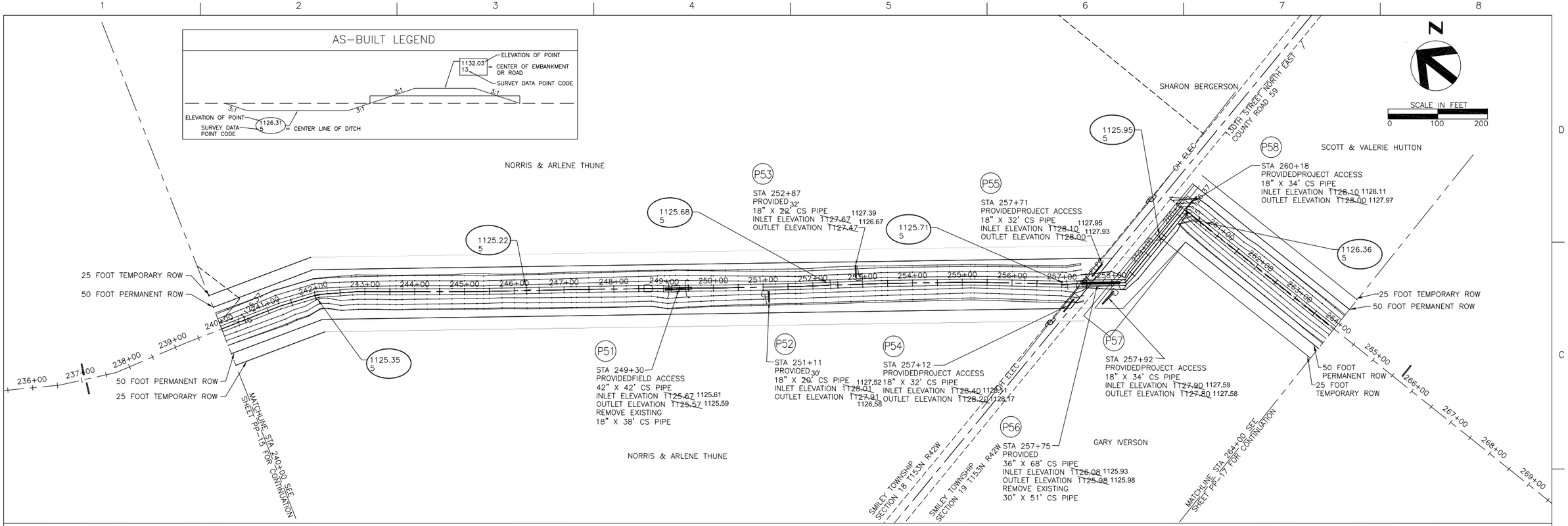
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

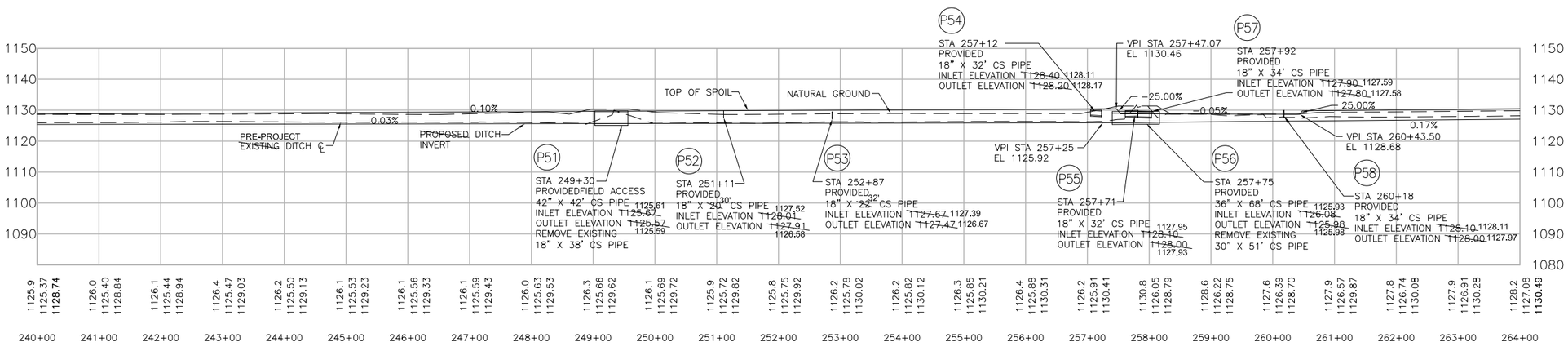
RLWD DITCH #14
PLAN AND PROFILE
STA 216+00 TO 240+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

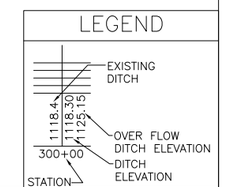
FILENAME	00C-PP01-010.dwg

SHEET PP-15





NOTE:
SEE UT-16 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

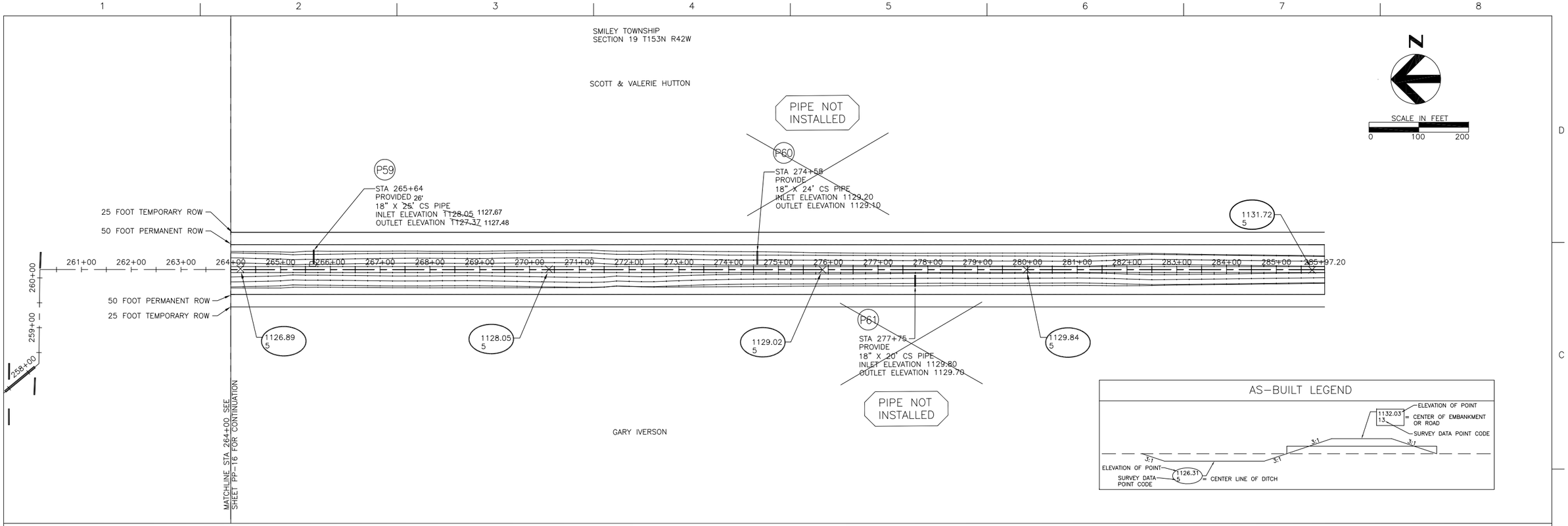
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

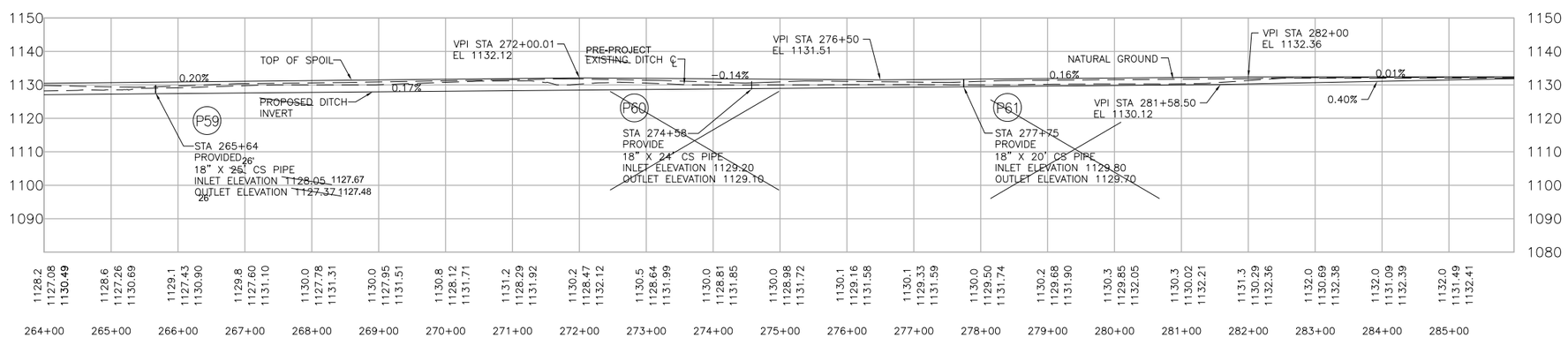
RLWD DITCH #14
PLAN AND PROFILE
STA 240+00 TO 264+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

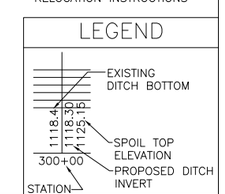
FILENAME	00C-PP01-011.dwg

SHEET
PP-16





NOTE:
SEE UT-17 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	R. Knott
DESIGNED	G. Hufnagle
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

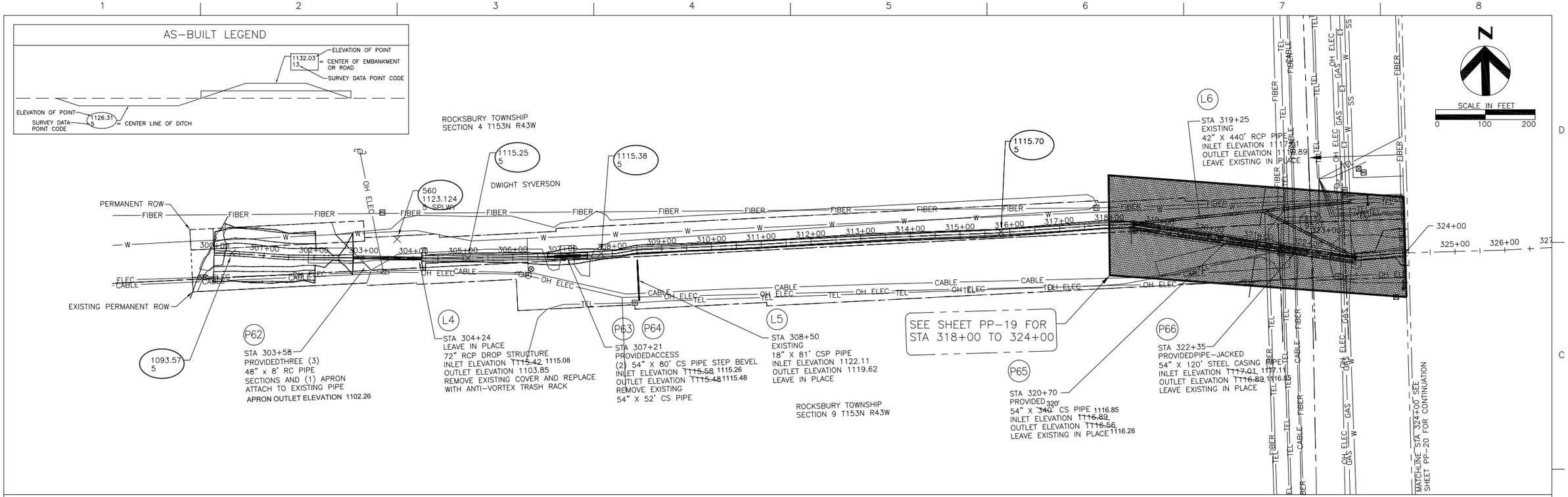
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

RLWD DITCH #14
PLAN AND PROFILE
STA 264+00 TO 285+97
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-PP01-012.dwg

SHEET
PP-17



CHALLENGER DITCH STATIONING REFERENCE	
COUNTY DITCH 1 DIVERSION STATION (2011)	RLWD PROJECT 122 CHALLENGER DITCH STATION (1997)
300+00	78+00
310+00	87+90
320+00	97+90
330+00	107+76
340+00	117+80
350+25	128+07 (END OF ALIGNMENT)

NOTE:
SEE UT-18 FOR UTILITY
COORDINATION AND
RELOCATION INSTRUCTIONS

LEGEND
EXISTING DITCH BOTTOM
913.2 912.30 PROPOSED DITCH INVERT
300+00 STATION

HDR
HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 -6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	R.Knott
DESIGNED	G. Hufnagle
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	151818

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

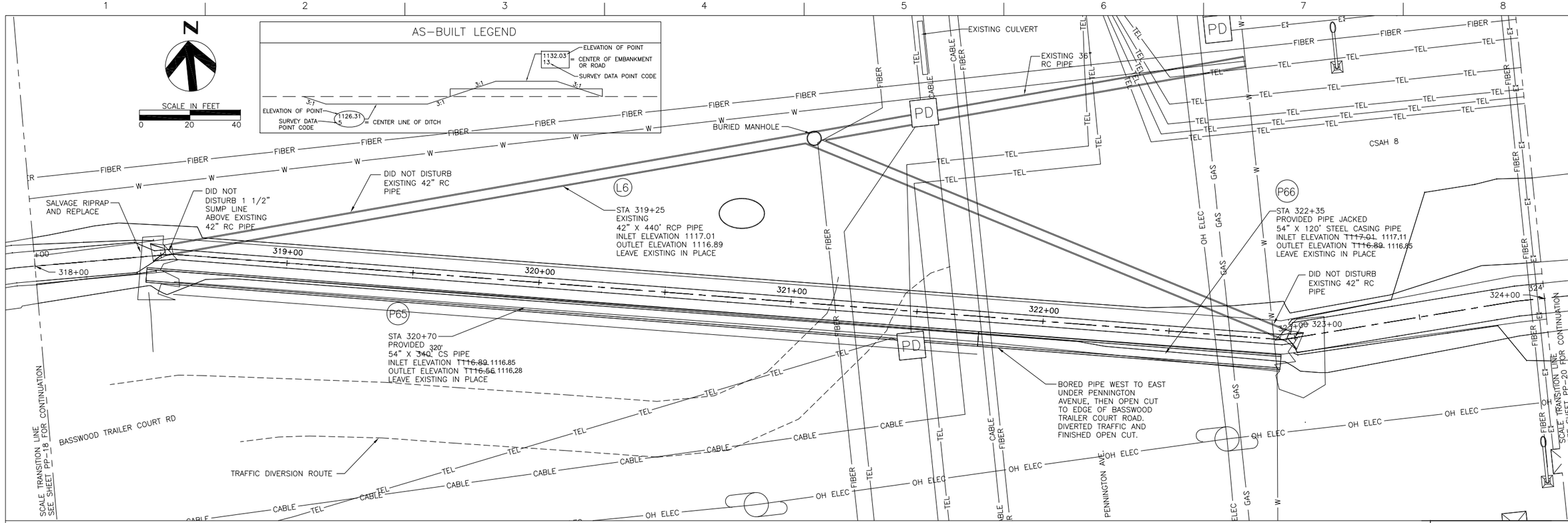
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

TRF FLOOD DAMAGE REDUCTION PROJECT
DIVERSION PLAN AND PROFILE
STA 300+00 TO 324+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-PP03-01.dwg

SHEET PP-18



HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	R. Knott
DESIGNED	M. Peterson
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District

1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

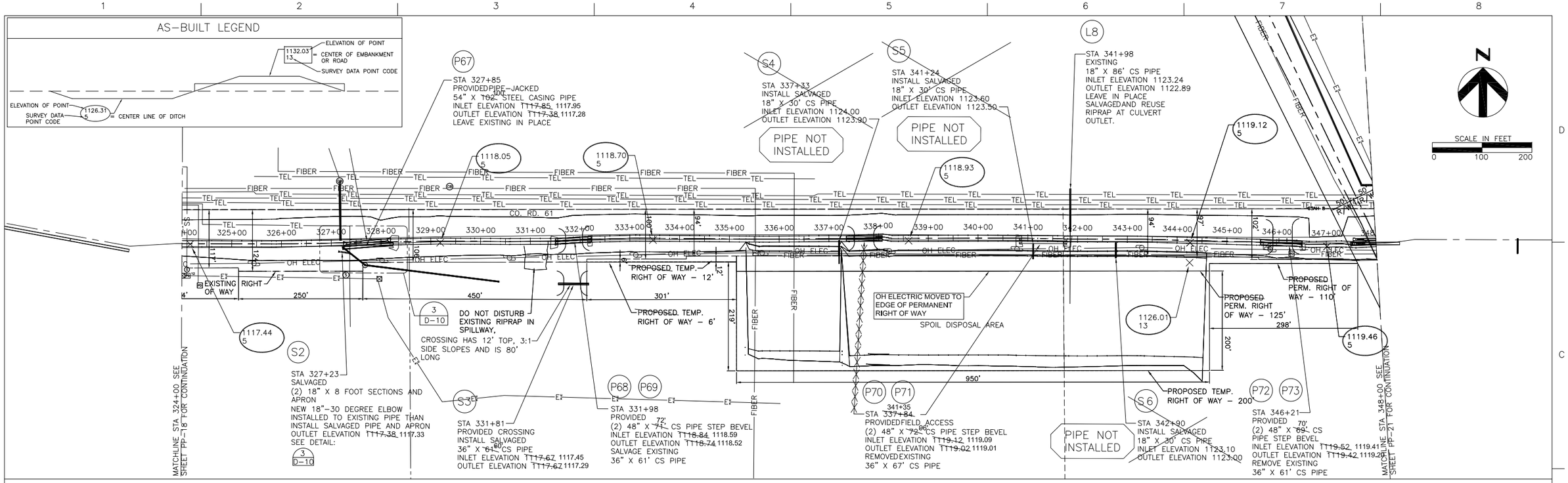
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

TRF FLOOD DAMAGE REDUCTION PROJECT
DIVERSION PLAN AND PROFILE
STA 318+00 TO 324+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-PP06-01.dwg

SHEET PP-19



NOTE:
SEE UT-20 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	R. Knott
DESIGNED	G. Hufnagle
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	151818

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District

1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

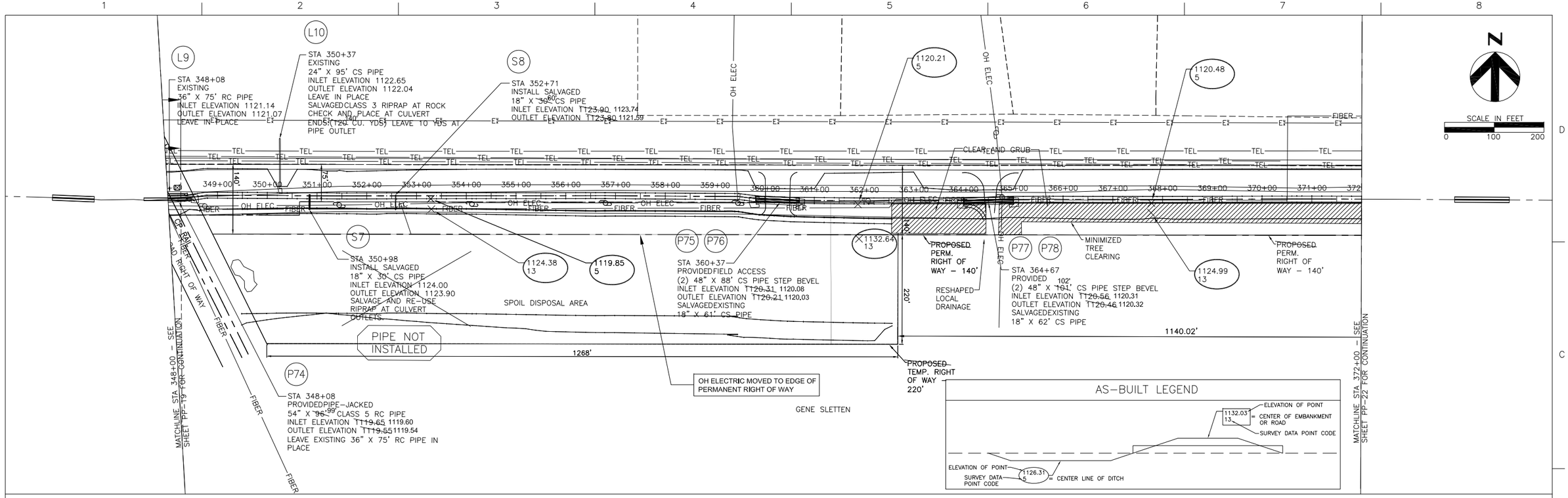
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

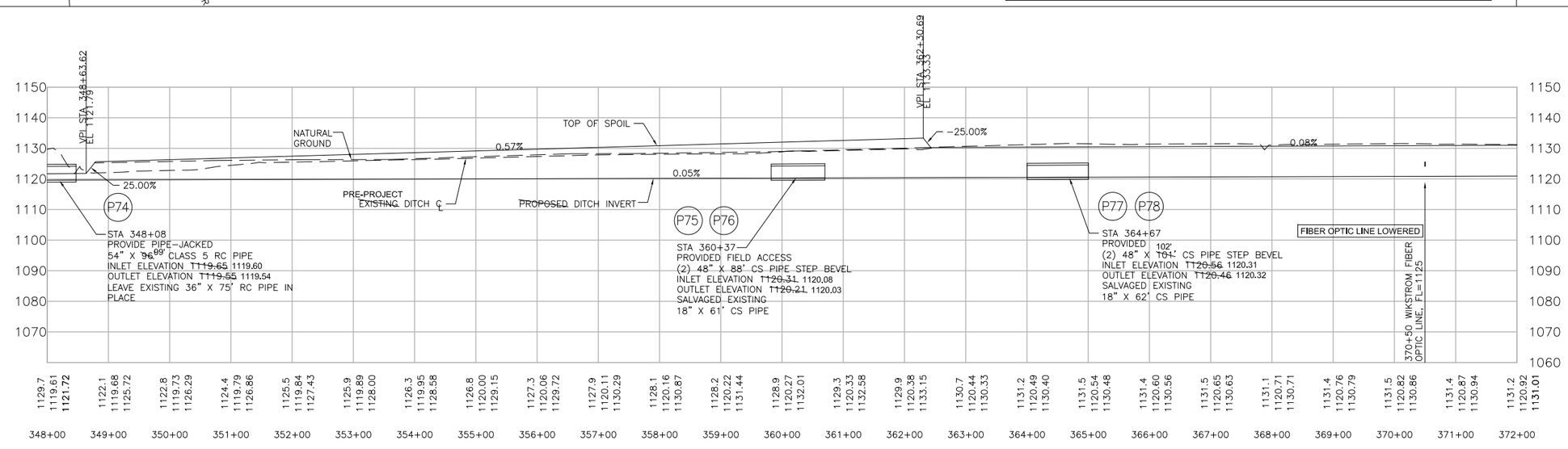
TRF FLOOD DAMAGE REDUCTION PROJECT
DIVERSION PLAN AND PROFILE
STA. 324+00 TO 348+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-PP03-02.dwg

SHEET PP-20





NOTE:
SEE UT-21 FOR UTILITY
COORDINATION AND
RELOCATION INSTRUCTIONS

HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 -6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathen P. Dalager
DESIGNED	R. Knott
DESIGNED	G. Hufnagle
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	151818

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake
Watershed District

1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

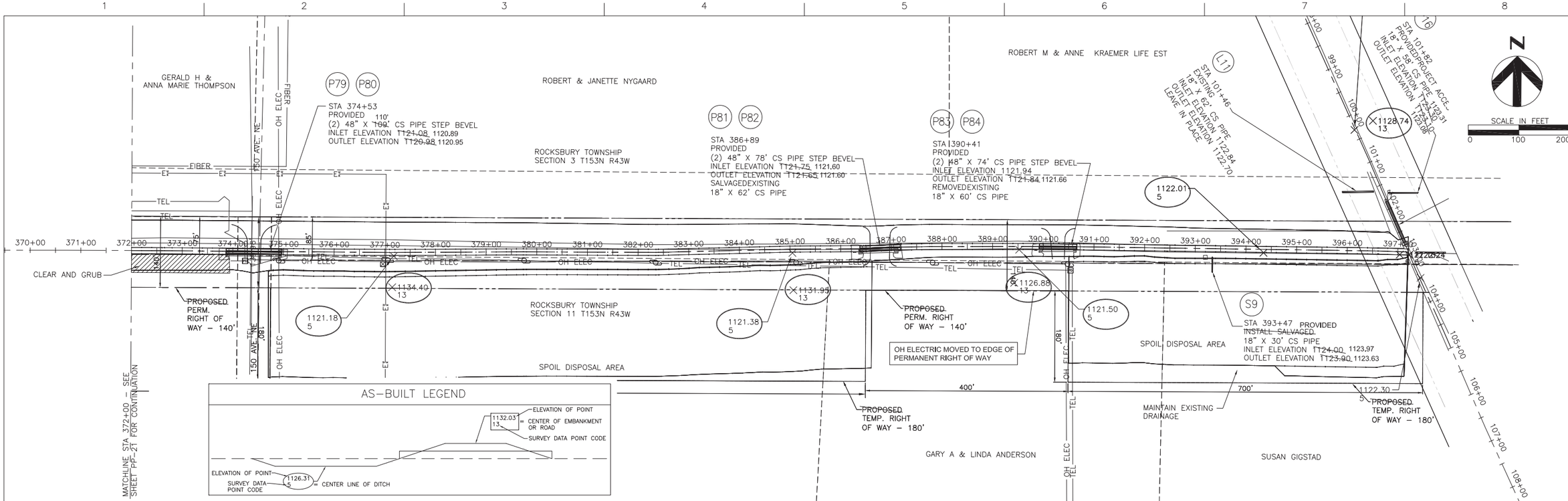
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION
PROJECT AND IMPROVEMENT TO PENNINGTON
COUNTY DITCH #1 (RLWD DITCH #14)

TRF FLOOD DAMAGE REDUCTION PROJECT
DIVERSION PLAN AND PROFILE
STA. 348+00 TO 372+00
AS-BUILT - JANUARY 2013

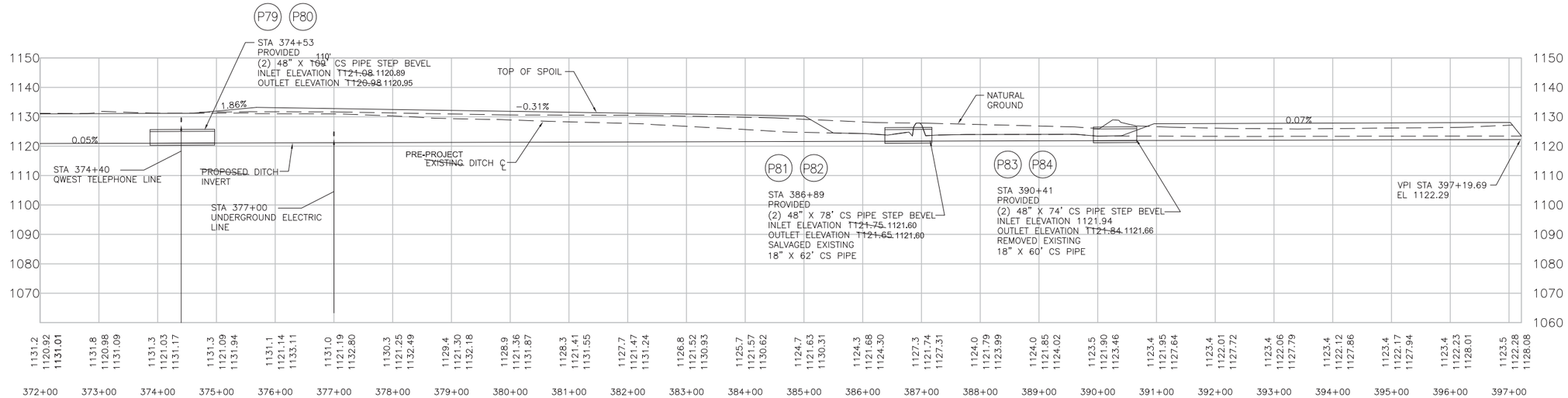
0 1/2" 1"

FILENAME 00C-PP03-03.dwg

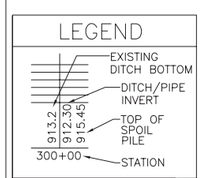
SHEET
PP-21



NOTE:
SEE UT-22 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS



LEGEND



HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 -6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	R. Knott
DESIGNED	G. Hufnagle
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

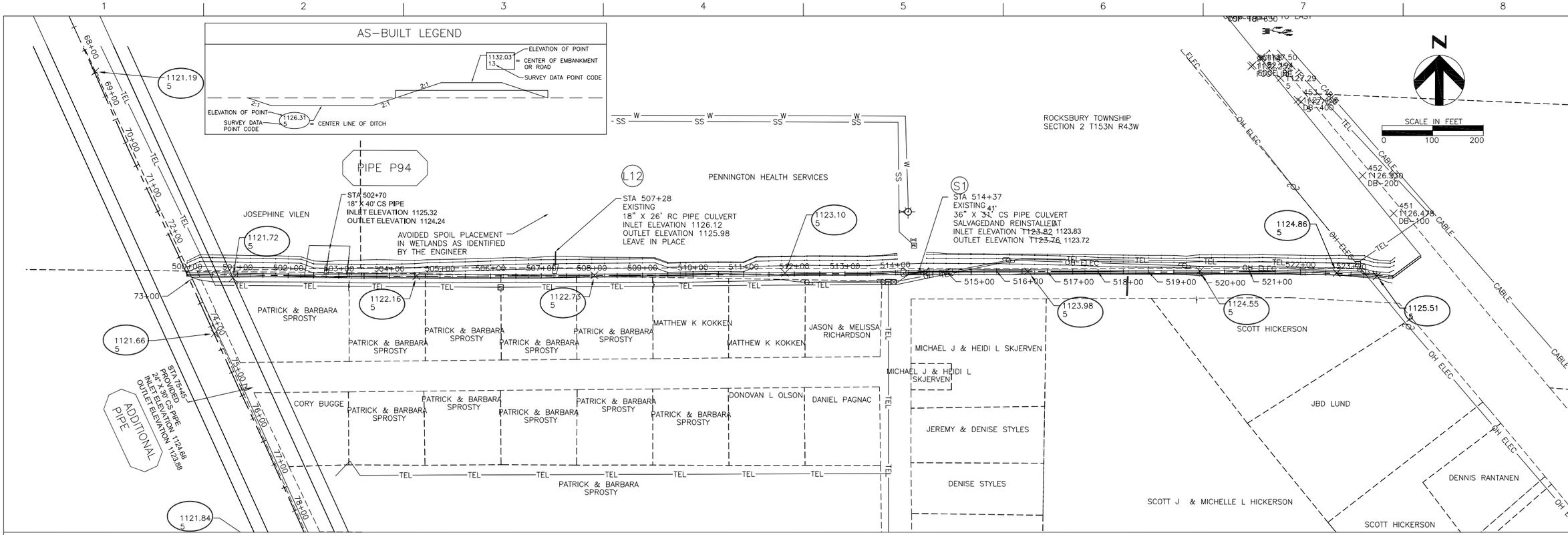
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

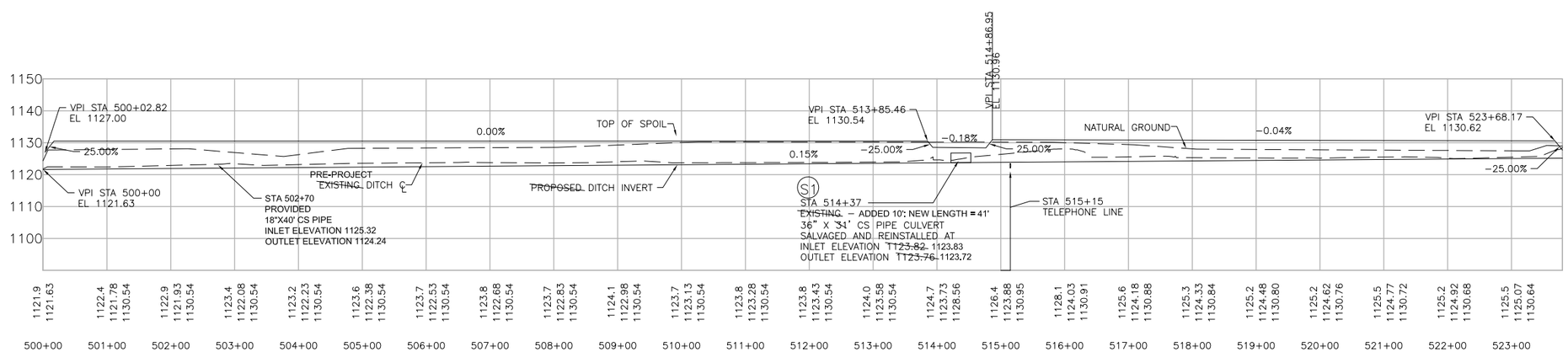
TRF FLOOD DAMAGE REDUCTION PROJECT
DIVERSION PLAN AND PROFILE
STA 372+00 TO 397+21
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-PP03-04.dwg

SHEET PP-22





NOTE:
SEE UT-23 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND

- EXISTING DITCH BOTTOM
- 1118.4 / 1118.30 / 1125.15 — SPOIL TOP ELEVATION
- 300+00 — STATION
- PROPOSED DITCH INVERT

HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

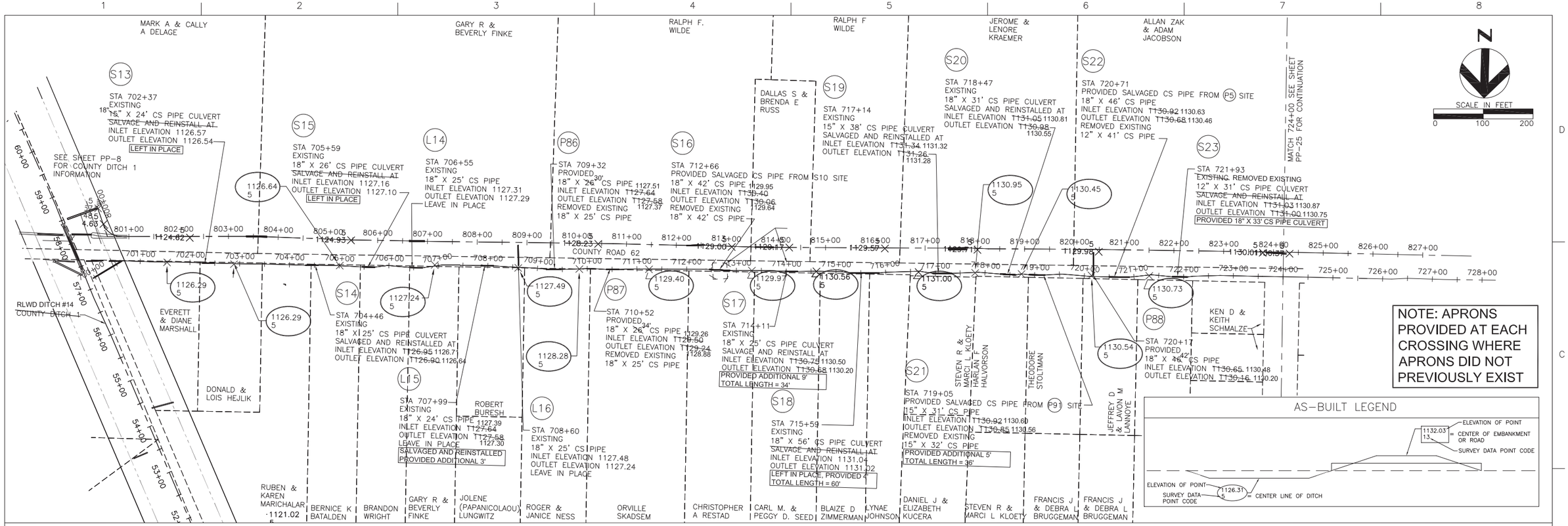
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

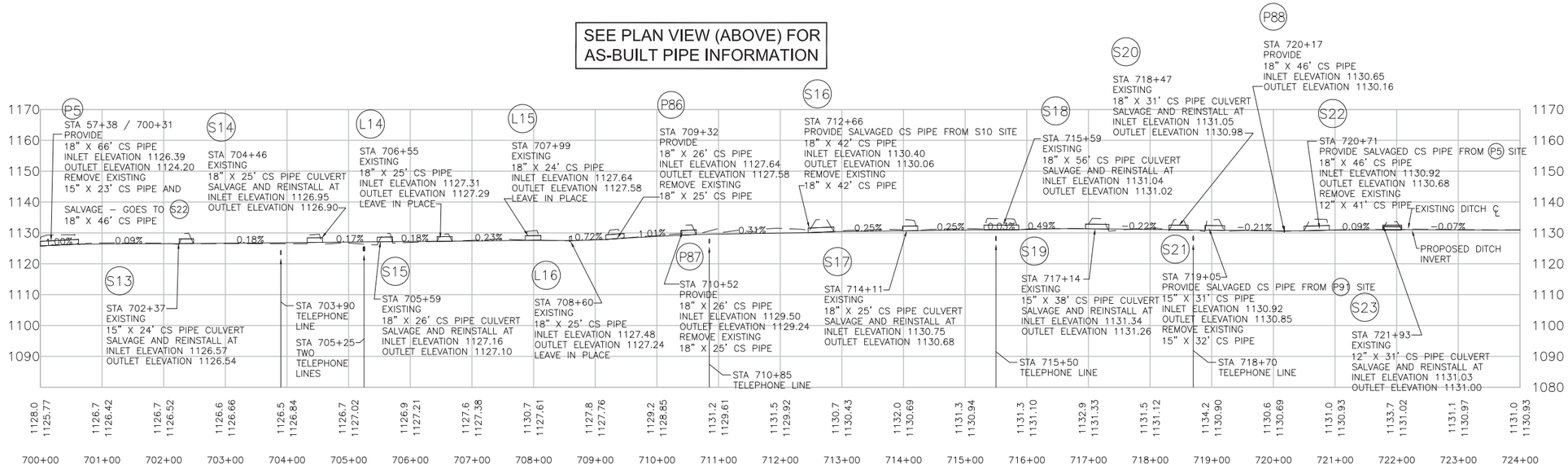
TRF FLOOD DAMAGE REDUCTION PROJECT
AASEBY DITCH AS-BUILT - JANUARY 2013
PLAN AND PROFILE
STA 500+00 TO 523+00

0 1/2" 1"

FILENAME	00C-PP02-01.dwg

SHEET
PP-23





AS-BUILT - JANUARY 2013

ISSUE	DATE	DESCRIPTION	PROJECT MANAGER	Nathan P. Dalager
			DESIGNED	B. Hauth
			DESIGNED	G. Hufnagle
			CHECKED	M. Redington
			CHECKED	
			DRAWN	
			DRAWN	
			PROJECT NUMBER	131515

HDR
HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

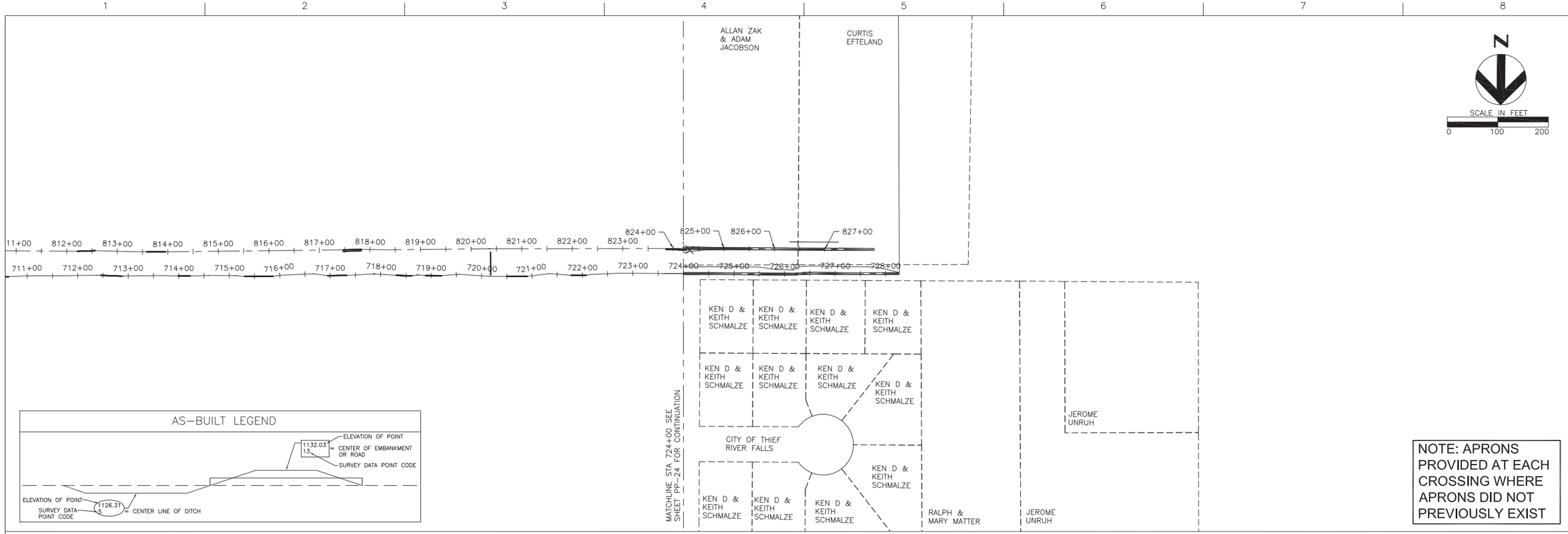
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

TRF FLOOD DAMAGE REDUCTION PROJECT
COUNTY ROAD 62 - NORTH DITCH
WEST OF RLWD DITCH #14
PLAN AND PROFILE STA 700+00 TO 724+00

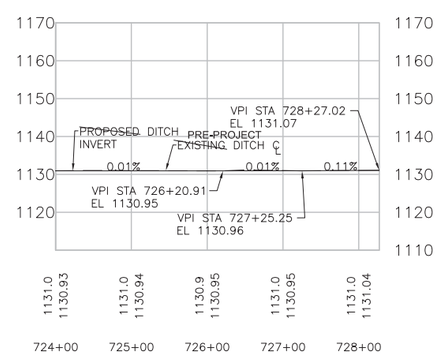
0 1/2" 1"

FILENAME 00C-PP04-01.dwg

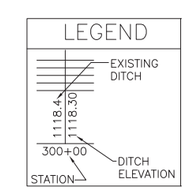
SHEET PP-24



NOTE: APRONS PROVIDED AT EACH CROSSING WHERE APRONS DID NOT PREVIOUSLY EXIST



AS-BUILT - JANUARY 2013



HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	G. Hufnagle
DESIGNED	B. Hauth
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District

1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

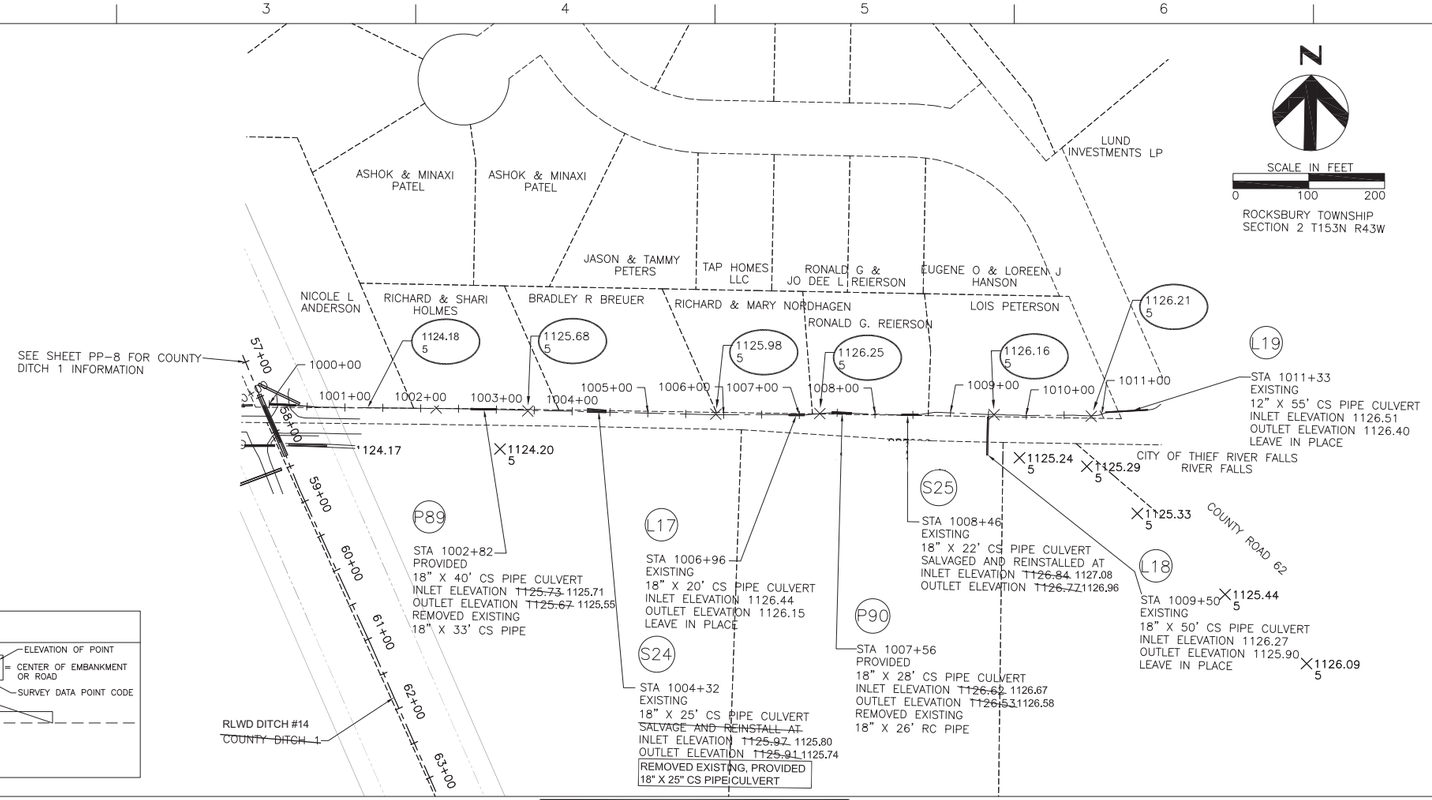
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

TRF FLOOD DAMAGE REDUCTION PROJECT
COUNTY ROAD 62 - NORTH DITCH
WEST OF RLWD DITCH #14
PLAN AND PROFILE STA 724+00 TO 728+00

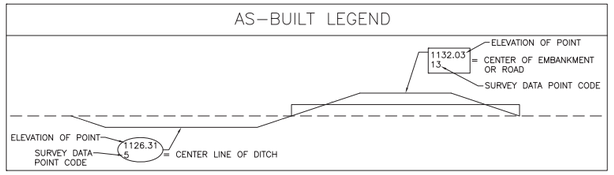
0 1/2" 1"

FILENAME	00C-PP04-02.dwg

SHEET PP-25

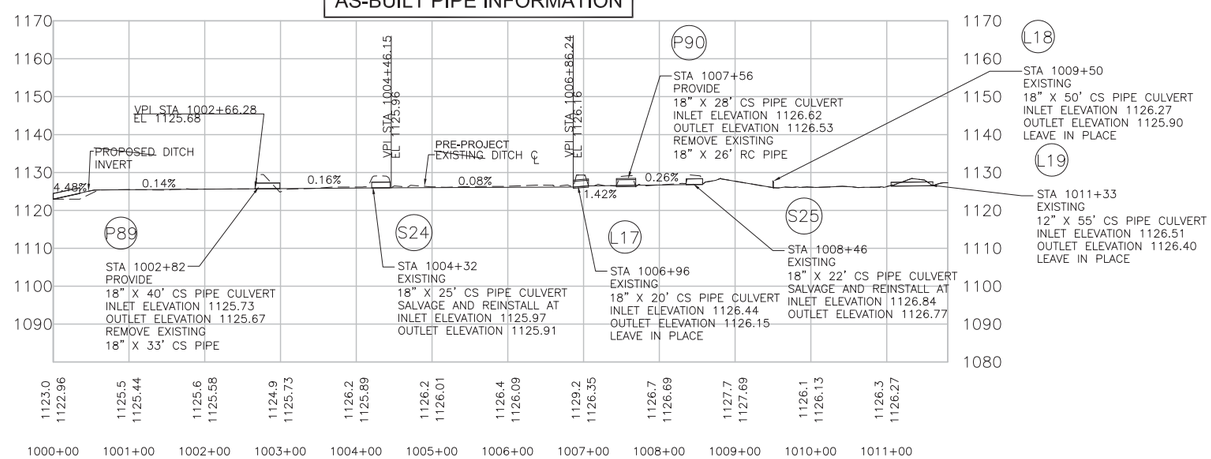


AS-BUILT LEGEND



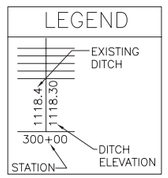
NOTE: APRONS PROVIDED AT EACH CROSSING WHERE APRONS DID NOT PREVIOUSLY EXIST

SEE PLAN VIEW (ABOVE) FOR AS-BUILT PIPE INFORMATION



NOTE:
SEE UT-24 & UT-25 FOR UTILITY COORDINATION AND RELOCATION INSTRUCTIONS

LEGEND



AS-BUILT - JANUARY 2013

HDR

HDR Engineering, Inc.
324 2nd St. E.
Thief River Falls, MN 56701
(218) 681 - 6100

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	Nathan P. Dalager
DESIGNED	B. Hauth
DESIGNED	G. Hufnagle
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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DATE 1/21/2013 REG. NO. 25309

Nathan P. Dalager

Red Lake Watershed District
1000 PENNINGTON AVE.
THIEF RIVER FALLS, MN
56701 (218) 681-5800

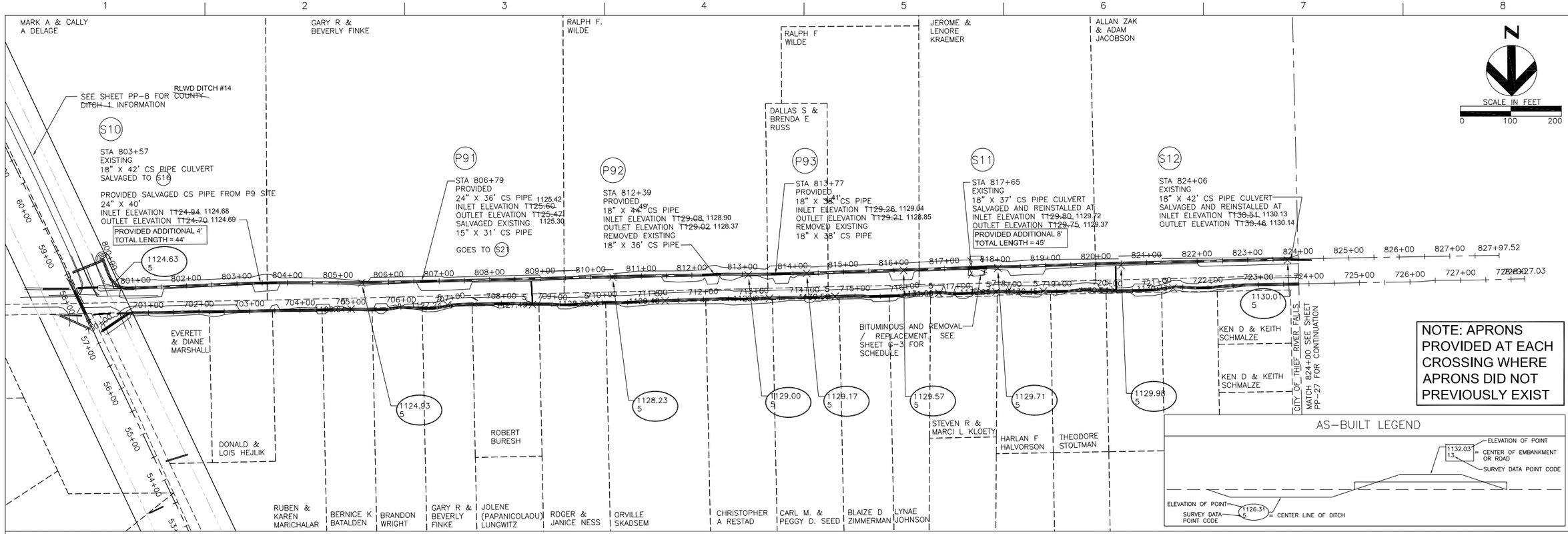
THIEF RIVER FALLS FLOOD DAMAGE REDUCTION PROJECT AND IMPROVEMENT TO PENNINGTON COUNTY DITCH #1 (RLWD DITCH #14)

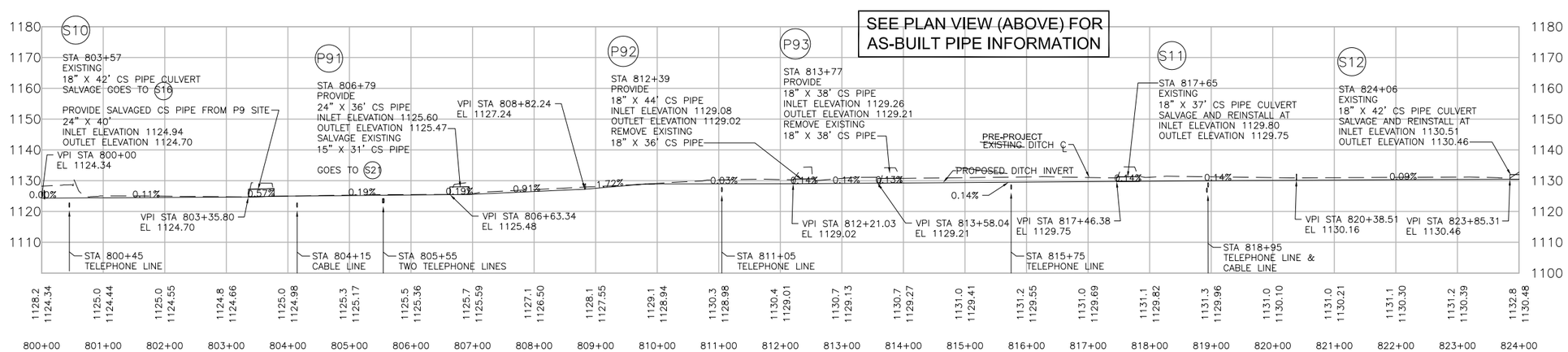
TRF FLOOD DAMAGE REDUCTION PROJECT
COUNTY ROAD 62 - NORTH DITCH
EAST OF RLWD DITCH #14
PLAN AND PROFILE STA 1000+00 TO 1011+81

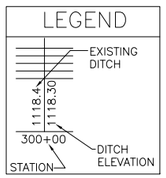
0 1/2" 1"

FILENAME	00C-PP04-05.dwg

SHEET PP-26







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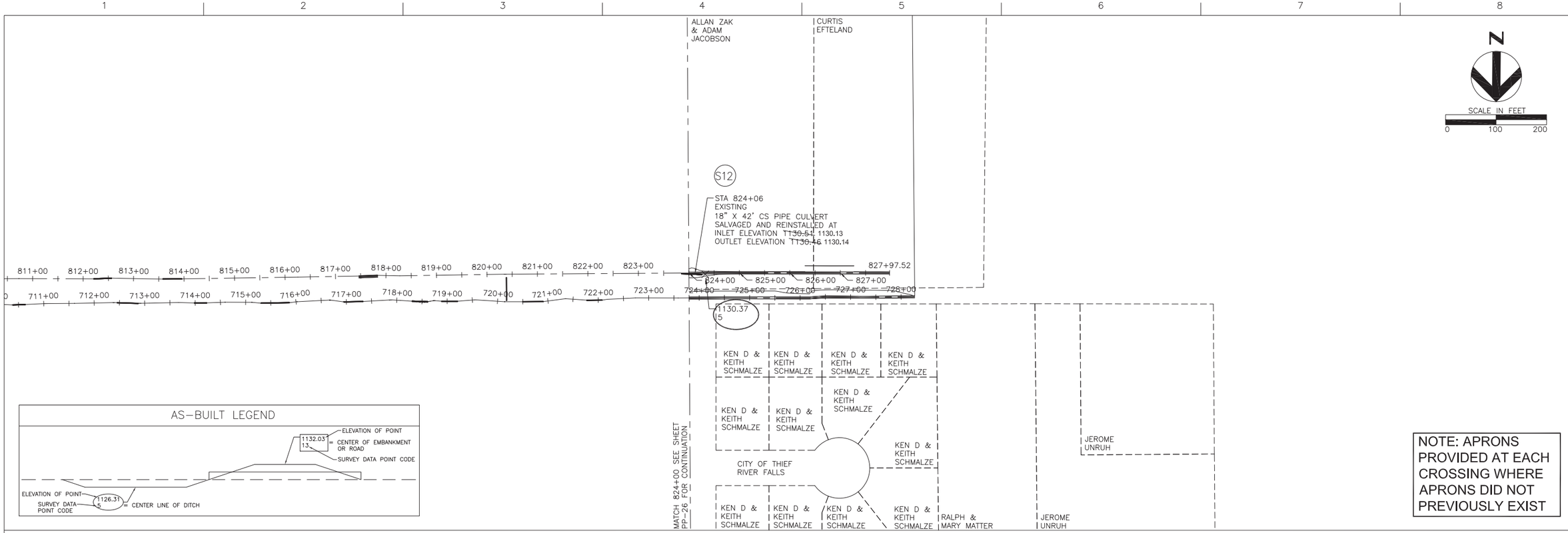
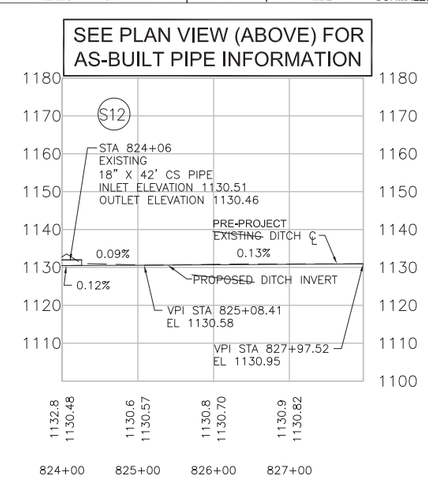
TRF FLOOD DAMAGE REDUCTION PROJECT
COUNTY ROAD 62 - SOUTH DITCH
WEST OF RLWD DITCH #14
PLAN AND PROFILE STA 800+00 TO 824+00

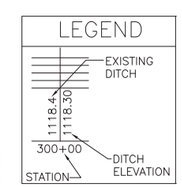
0 1/2" 1"

FILENAME	00C-PP04-03.dwg

SHEET PP-27







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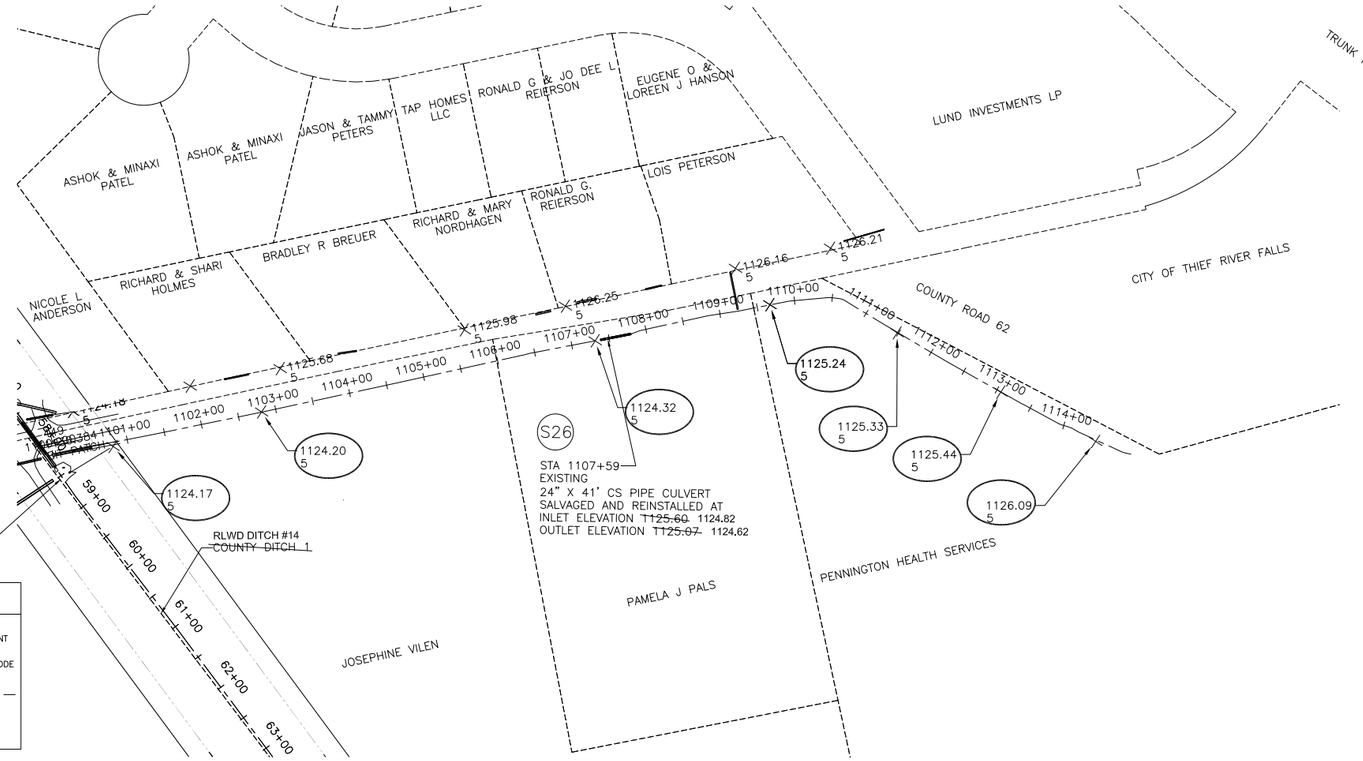
COUNTY ROAD 62 - SOUTH DITCH
WEST OF RLWD DITCH #14
PLAN AND PROFILE STA 824+00 TO 827+98

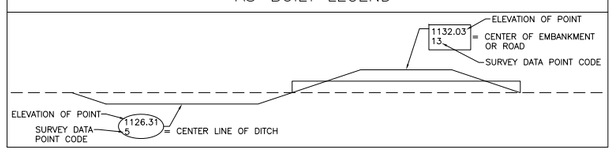
0 1/2" 1"

FILENAME	00C-PP04-04.dwg

SHEET PP-28

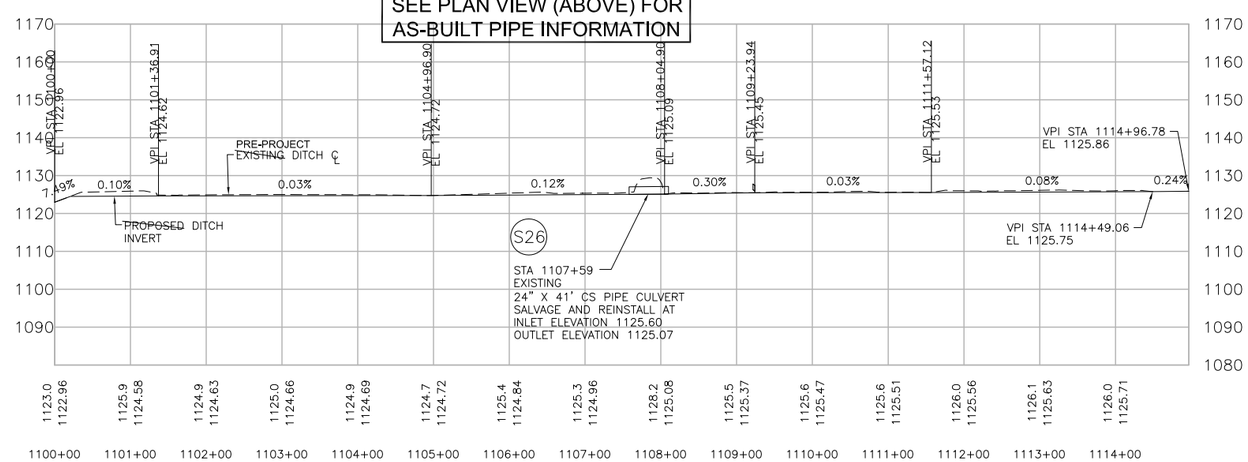


AS-BUILT LEGEND

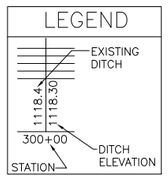


NOTE: APRONS PROVIDED AT EACH CROSSING WHERE APRONS DID NOT PREVIOUSLY EXIST

SEE PLAN VIEW (ABOVE) FOR AS-BUILT PIPE INFORMATION



LEGEND



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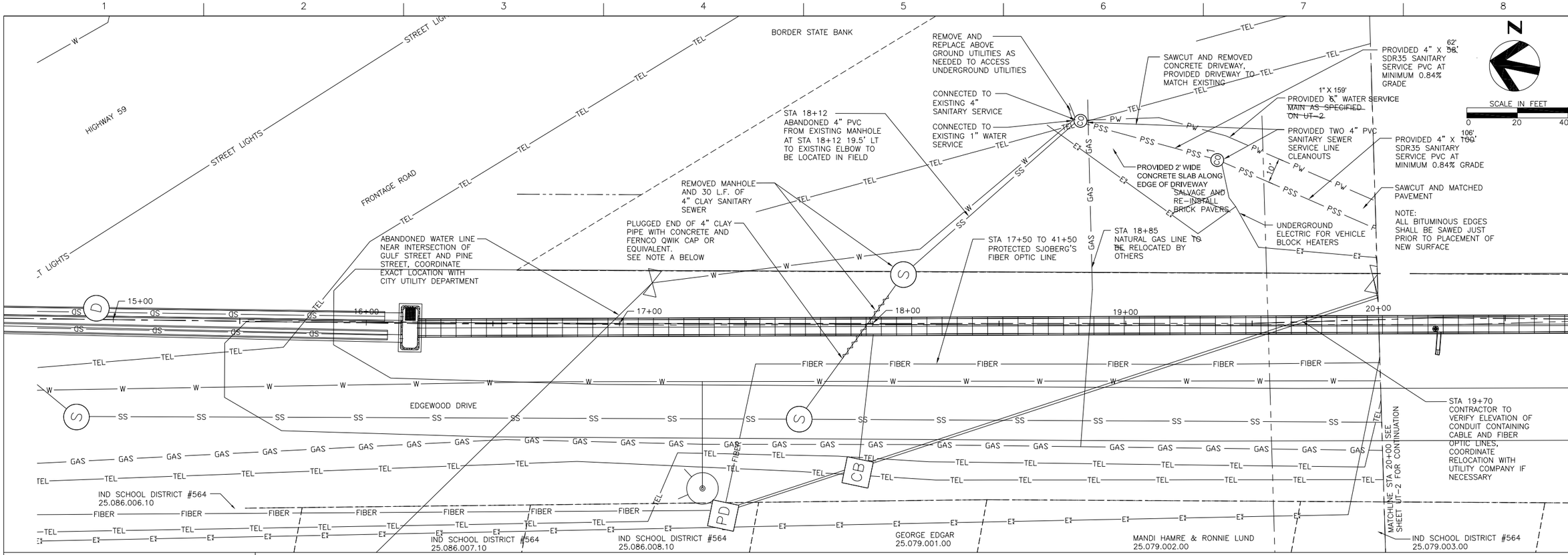
TRF FLOOD DAMAGE REDUCTION PROJECT
COUNTY ROAD 62 - SOUTH DITCH
EAST OF RLWD DITCH #14
PLAN AND PROFILE STA 1100+00 TO 1114+97

0 1/2" 1"

FILENAME	00C-PP04-06.dwg

SHEET PP-29



NOTE– A

CONSTRUCTION SEQUENCE REGARDING SANITARY SEWER RELOCATION

1. PROVIDE 8" SDR 26 PIPE AND THREE MANHOLES AS SHOWN ON UT–2 AND CONNECT TO EXISTING MANHOLE AT STA 24+00 39' RT.
2. CUT EXISTING SANITARY SERVICE LINE AT LOCATION OF NEW 8" SANITARY SEWER PIPE AND CONNECT.
3. IMMEDIATELY PLUG ABANDONED SANITARY SERVICE LINE WITH CONCRETE TO PREVENT BACKFLOW FROM SANITARY MAIN.
4. WHEN EXCAVATING FOR PROPOSED STORM SEWER, REMOVE SPECIFIED QUANTITY OF SANITARY SERVICE LINE AND PLUG WEST END OF EXISTING PIPE WITH CONCRETE. CAP WITH FERNCO QWIK CAP OR EQUIVALENT.

(SEE PLAN AND PROFILE ON SHEET UT–2)

NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITH EACH UTILITY. SEE SHEET G–3 FOR UTILITY CONTACT INFORMATION.
2. FOR UTILITY OWNERSHIP BY STATION SEE UTILITY SCHEDULE ON SHEET G–4.

WATER MAIN SUMMARY - PROPOSED QUANTITIES
SHEETS UT-1 & UT-2

DESCRIPTION	UNIT	QUANTITY
ABANDON WATER SERVICE LINE	EA	6
1" COPPER WATER SERVICE LINE	LF	180
2" COPPER WATER SERVICE LINE	LF	65
6" WATER MAIN (PVC)	LF	450
1" CURB STOP & BOX	EA	4
2" CURB STOP & BOX	EA	1
TEMPORARY WATER	LS	1
6" x 1" SERVICE SADDLE	EA	4
6" x 2" SERVICE SADDLE	EA	1
1" CORPORATION STOP	EA	4
2" CORPORATION STOP	EA	1
6" TAPPED COUPLING	EA	1
6" GATE VALVE	EA	2
VALVE BOX	EA	2
HYDRANT	EA	1
FITTINGS	LB	155
GRANULAR BEDDING	TON	338

(TRENCH AND CONNECTIONS ARE INCIDENTAL)

RELOCATE SANITARY SEWER - PROPOSED QUANTITIES
SHEETS UT-1 & UT-2

DESCRIPTION	UNIT	QUANTITY
ABANDON SANITARY SERVICE LINE	EA	5
8" SANITARY PIPE SEWER (SDR26)	LF	420
4" SANITARY SEWER SERVICE PIPE (SDR35)	LF	235
CONNECT SANITARY SERVICE LINE	EA	4
CONSTRUCT SANITARY SEWER MANHOLE	LF	23
CONNECT TO EXISTING MANHOLE	EA	1
CASTING ASSEMBLY	EA	3
8" X 4" WYE BRANCH	EA	2
4" CLEANOUT ASSEMBLY	EA	2
SANITARY SEWER TRENCH EXCAVATION	LF	655
REMOVE MANHOLE	EA	1
GRANULAR BEDDING	TON	313

COMBINED UTILITY RELOCATION - PROPOSED QUANTITIES
SHEETS UT-1 & UT-2

DESCRIPTION	UNIT	QUANTITY
REMOVE BITUMINOUS PAVEMENT	SY	222
REMOVE CONCRETE PAVEMENT	SY	69
SALVAGE AND REINSTALL BRICK PAVERS	SQ FT	80
CONCRETE PAVEMENT	SY	69
SAWING CONCRETE PAVEMENT	LF	30
AGGREGATE BASE, CLASS 3	TON	221
TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	TON	56.8
SEEDING	ACRE	0.35
SEED MIXTURE 270RT	LB	42
MULCH MATERIAL, TYPE 1	TON	0.70
DISK ANCHORING	ACRE	0.35
FERTILIZER, TYPE 2	TON	0.035
SAWING BITUMINOUS PAVEMENT	LF	350

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DESIGNED	M. Peterson
DESIGNED	R. Knott
CHECKED	M. Redington
CHECKED	
DRAWN	
DRAWN	
PROJECT NUMBER	131515

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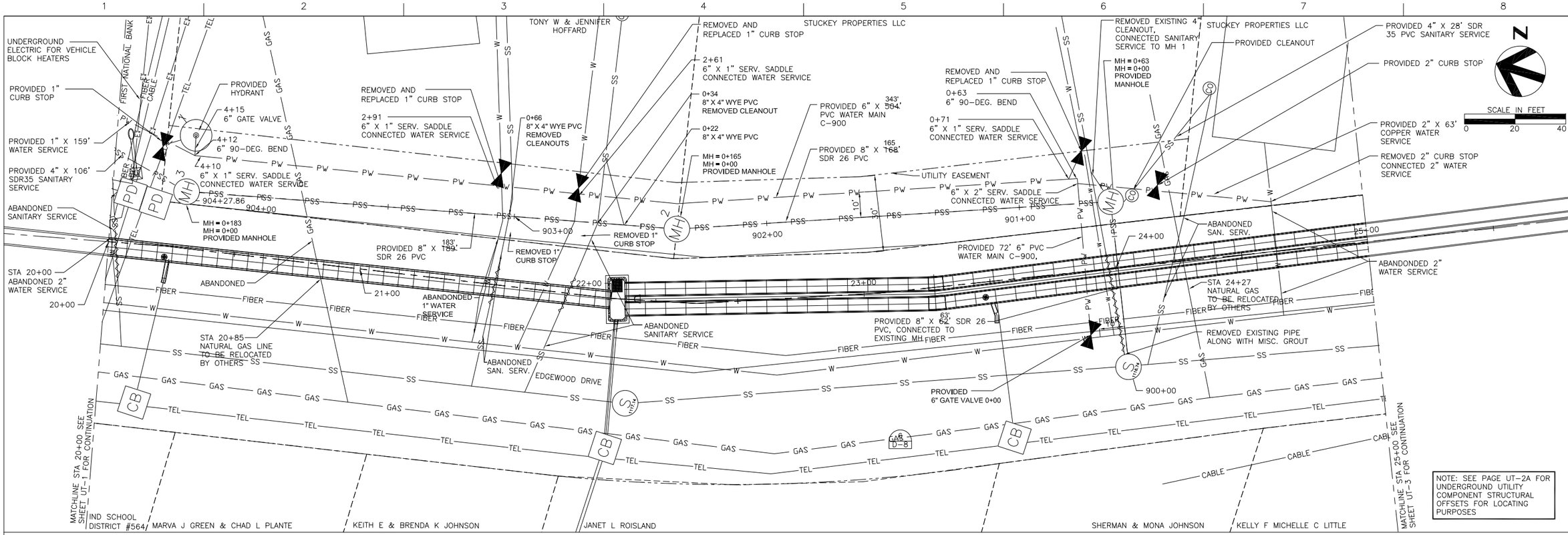
TRF FLOOD DAMAGE REDUCTION PROJECT
STORM SEWER UTILITY PLAN
STA 16+10 TO 20+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

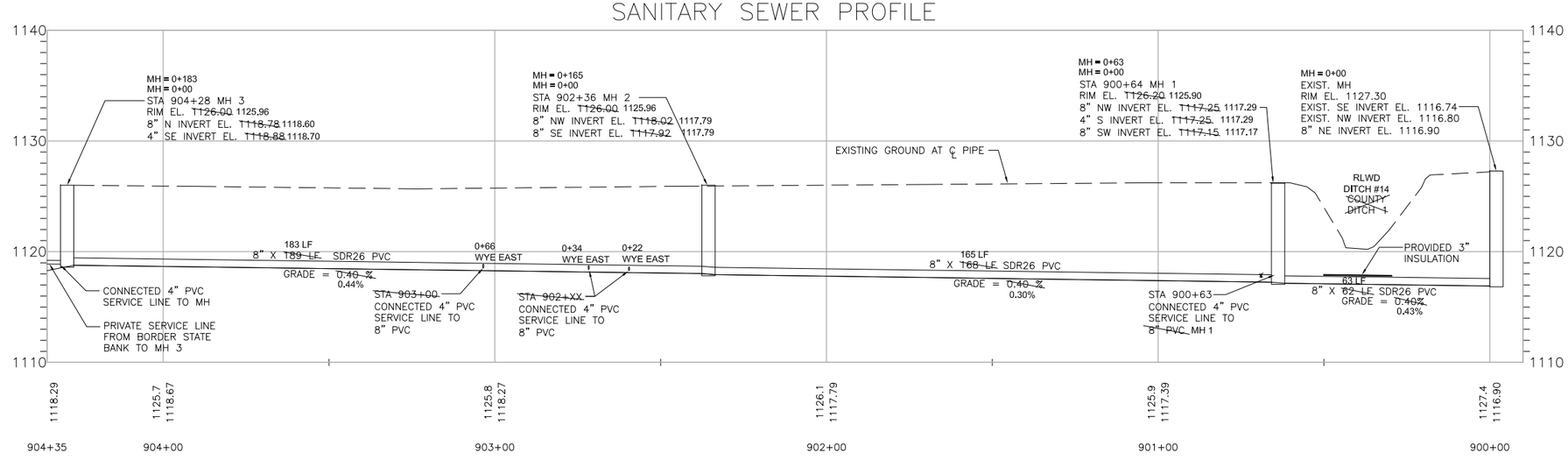
FILENAME	00C–UT05–01.dwg

SHEET UT-1



NOTE: SEE PAGE UT-2A FOR UNDERGROUND UTILITY COMPONENT STRUCTURAL OFFSETS FOR LOCATING PURPOSES

SANITARY SEWER PROFILE



UTILITY INSULATION:

A. 3" THICK x 4' WIDE x 16 L.F. (1 ½" LAYERS) SEE SPECS FOR CLARIFICATION

NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITH EACH UTILITY. SEE SHEET G-3 FOR UTILITY CONTACT INFORMATION.
2. FOR UTILITY OWNERSHIP BY STATION SEE UTILITY SCHEDULE ON SHEET G-4.
3. PROVIDE 18" MINIMUM VERTICAL SEPARATION BETWEEN ALL SANITARY SEWER AND POTABLE WATER CROSSINGS.

LEGEND

PIPE INVERT
1117.2 / 1127.30 — EXISTING GROUND AT ℄ PIPE
900+00 — STATION

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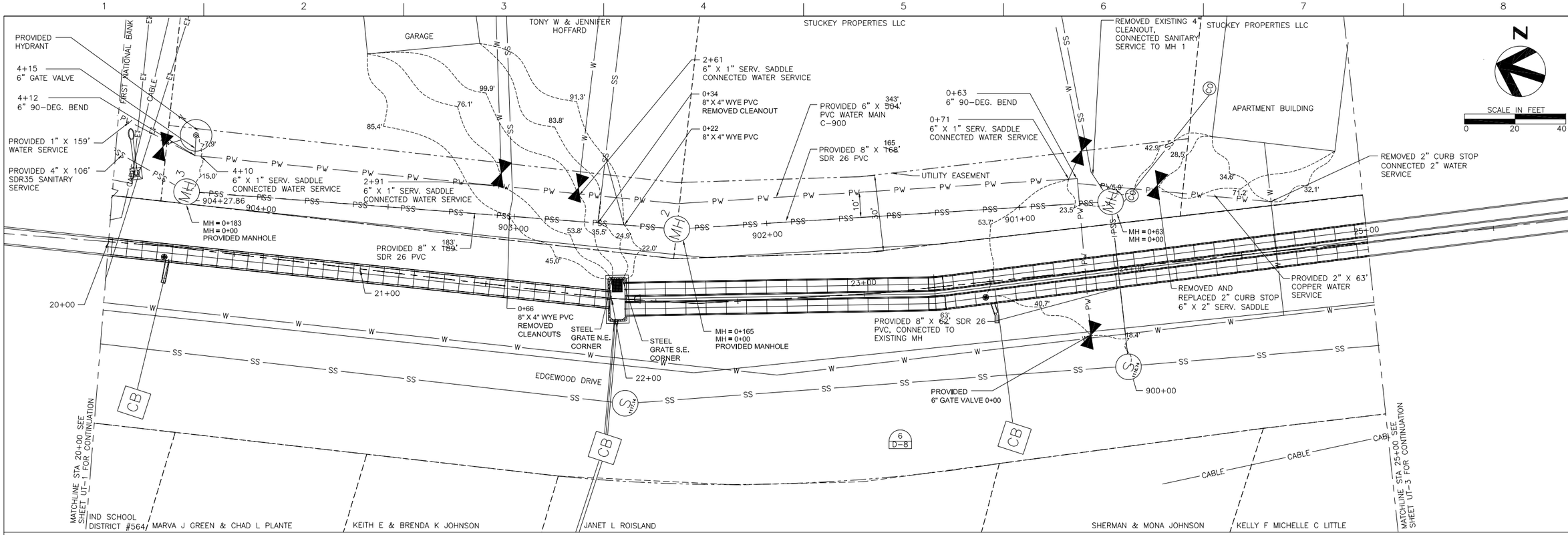
TRF FLOOD DAMAGE REDUCTION PROJECT
STORM SEWER UTILITY PLAN
STA 20+00 TO 25+00
AS-BUILT - JANUARY 2013

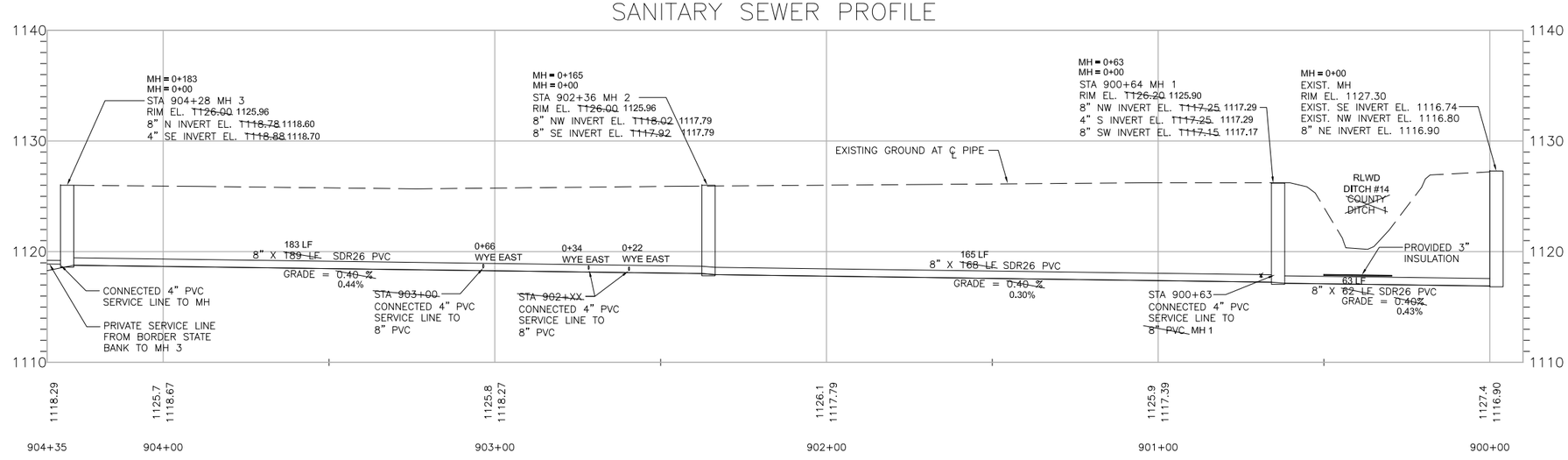
0 1/2" 1"

FILENAME	00C-UT05-02.dwg

SHEET UT-2



SANITARY SEWER PROFILE



UTILITY INSULATION:

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LEGEND

PIPE INVERT

1117.2 / 1127.30 — EXISTING GROUND AT ℄ PIPE

900+00 — STATION

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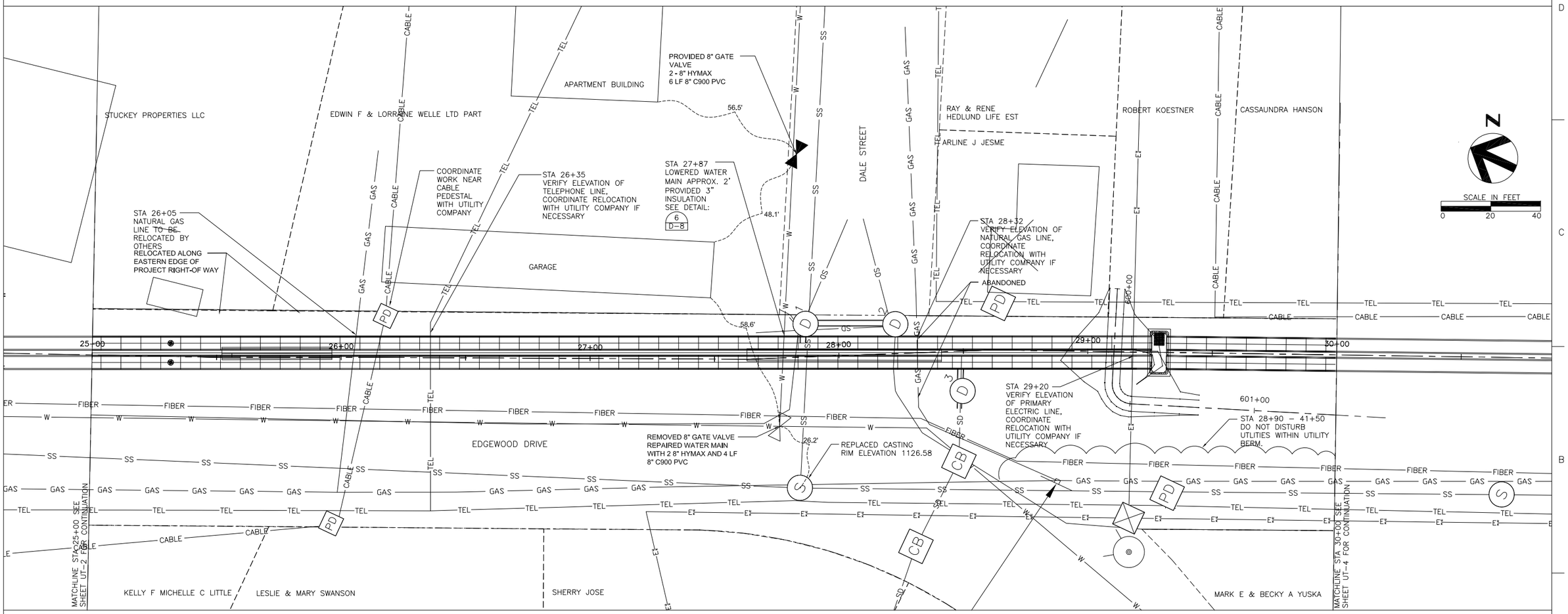
STORM SEWER UTILITY PLAN
STA 20+00 TO 25+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C-UT05-02 LOCATE.dwg

SHEET UT-2A



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UTILITY INSULATION:

A. 3" THICK x 4' WIDE x 24 L.F. (1 ½" LAYERS) SEE SPECS FOR CLARIFICATION

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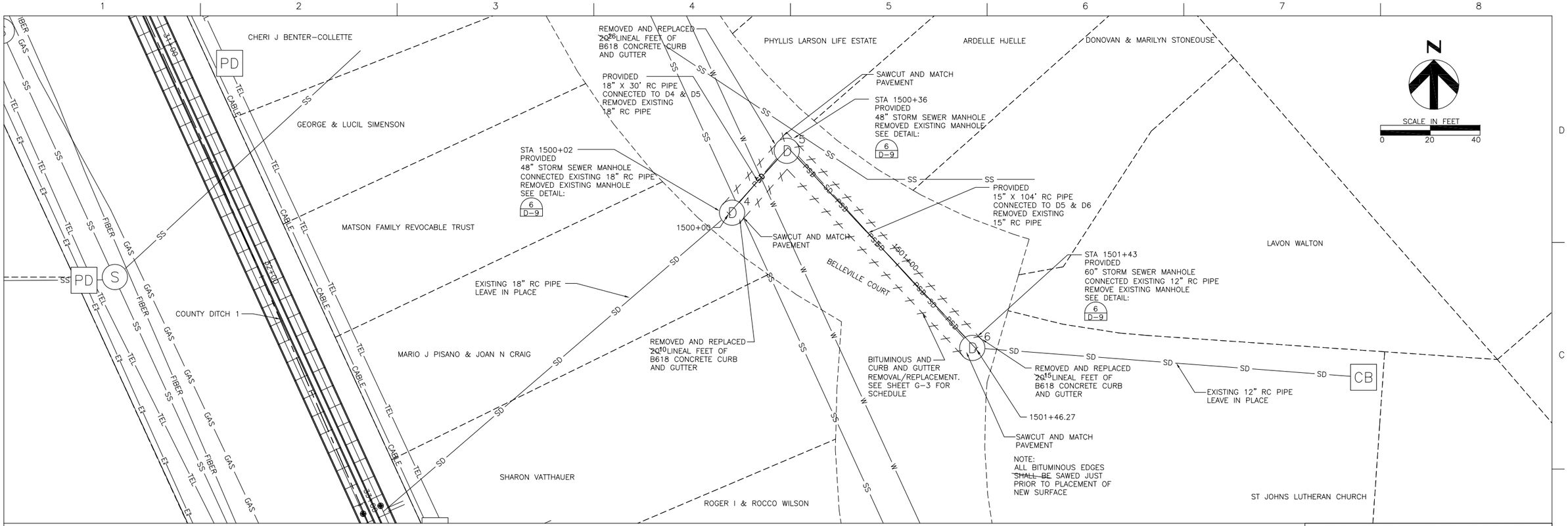
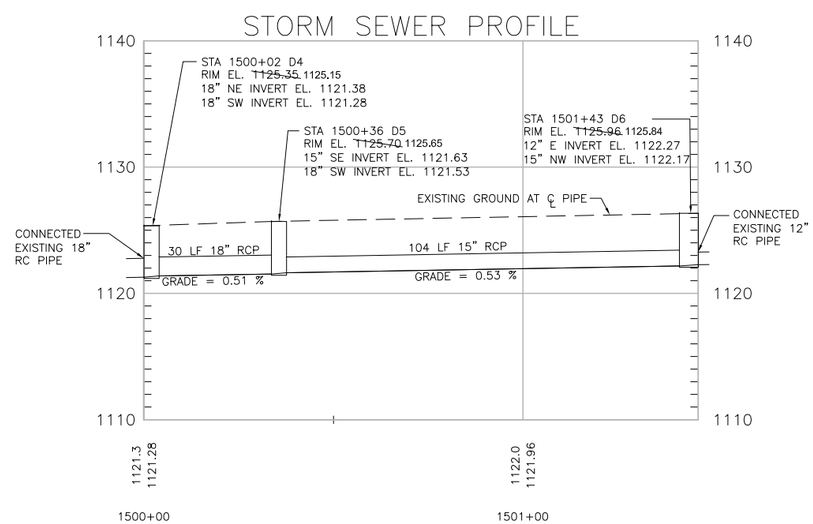
STORM SEWER UTILITY PLAN
STA 25+00 TO 30+00
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME 00C-UT05-03.dwg

SHEET UT-3





BELLEVILLE COURT - PROPOSED STORM SEWER QUANTITY SUMMARY		
DESCRIPTION	UNIT	QUANTITY
REMOVE CATCH BASIN	EA	3
REMOVE 15" RC SEWER PIPE (STORM)	LF	104
REMOVE 18" RC SEWER PIPE (STORM)	LF	30
15" RC SEWER PIPE (STORM)	LF	104
18" RC SEWER PIPE (STORM)	LF	30
48" CATCH BASIN	LF	8
60" CATCH BASIN	LF	4
CASTING ASSEMBLY	EA	3
SAWING BITUMINOUS PAVEMENT	LF	632
REMOVE BITUMENOUS PAVEMENT	SY	176
REMOVE CURB AND GUTTER	LF	60
GRANULAR BEDDING	TON	66
AGGREGATE BEDDING (CV) CLASS 3	TON	164
AGGREGATE SURFACING (CV) (CLASS 5 MOD)	TON	25
CONCRETE CURB AND GUTTER, DESIGN B618	LF	60
TYPE SP 9.5 WEARING COURSE MIX	TON	45
SITE SEEDING	LS	1

NOTES:

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LEGEND

PIPE INVERT
EXISTING GROUND AT ℄ PIPE
1117.2
1127.30
900+00
STATION

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BELLEVILLE COURT
STORM SEWER PLAN AND PROFILE
STA 1500+00 TO 1501+42
AS-BUILT - JANUARY 2013

0 1/2" 1"

FILENAME	00C–UT06–01.dwg

SHEET
UT-26