Exception Request No.: 172
Section: WMNF
Town: Woodstock
Highway: NH 112, Lost River Road (Tier 3) and US 3, Main Street (Tier 2)
Station: 1445+50±, 1449+90± to 1467+10±
Drawing No.: WMNF C187-189
Survey Report Cross Reference No.: WMNF C187-189
Exception Type: Alignment in Pavement
Splice Enclosures in Pavement
Road Crossings

Traffic Information

NHS: No
ADT: 1900
Traffic Control Type: Traffic Control Type: Alt 1-Way
Traffic Control Duration: Traffic control duration is estimated to be 24 days for the proposed installation, during which one lane will be closed.

Summary of Justification for Exception

NPT is requesting an exception from the UAM guidelines for the location of the cable trench in the pavement on NH Highway 112, Lost River Road and US 3, Main Street from station 1449+90 to 1467+10 of the NPT WMNF Underground Alignment, sheet WMNF C187-189. Due to limited ROW space outside the pavement and beyond existing utilities, construction outside the paved area is not practicable because NPT does not have the necessary property rights to construct outside the NHDOT ROW on private property. The proposed alignment is located beneath the pavement at a 5-foot offset from the existing utilities to avoid future conflicts with repairs or replacement. The attached Exhibits A, B, and C have been provided to demonstrate that construction outside the pavement would require work beyond the NHDOT ROW.

In addition, our exception request in this area includes two splice enclosures in the pavement, one on NH Highway 112, Lost River Road at station 1445+50± and another on US 3, Main Street at station 1466+50± of the NPT WMNF underground alignment section. The proposed locations of the splice enclosures are set back from the edge of the ROW and from existing utilities. The splice enclosures cannot be moved closer to the ROW limits because of the need for construction workspace.

Technical Discussion of Justification of Exception

Alignment in Pavement/Road Crossings
The proposed alignment is within the roadway because of a combination of constraints including:

- Limited space between the edge of pavement and the edge of the ROW on both sides of the road on both NH 112 and US 3;
- Existing catch basins located at the edge of pavement;
- Sewer infrastructure including both gravity lines and force mains;
- Water mains and ancillary equipment (hydrants and valves).

Existing sewer infrastructure runs along the north side of ROW on NH112. The proposed alignment crosses the highway, north to south, at stations 1450+00± to 1451+00± to avoid conflicts with the sewer main.

An existing water main runs along the south side of NH 112 and along the east side of US 3. The alignment has been set back from the water main.

Where there are not utilities, there is limited space beyond the existing pavement. As the alignment turns south on US 3 there is an existing retaining wall on the west side of the road immediately behind the curb. The alignment has been located on the east side within the pavement to avoid conflicts with the water main and hydrants and catch basins.

Splice Enclosures in Pavement

To construct the splice enclosures, a minimum 5-foot work area is required on all sides. At the location of the splice enclosure at station1445+50± the width of the ROW beyond the edge of pavement is not sufficient to locate the entire splice enclosure beyond the pavement. The splice enclosure at 1466+50± is set back from the existing water main. Locating the splice enclosure to the east of the water main would not provide sufficient space for construction between the water main and the edge of the ROW.

NPT evaluated options for moving the splice enclosures to the opposite side of the road and along the alignment, but similar space constraints exist on both sides of the road. In addition, moving the alignment to the opposite side of the road would require two additional highway crossings. These road crossings would involve disturbance to approximately 100 feet of paved roadway each. NPT submits that any benefits of moving to the opposite side of the road are negated by the additional traffic impacts and additional delays associated with the construction of the road crossings.

The location of each splice enclosure along the alignment is constrained by the maximum cable reel length of 2,100 feet. The limited ROW width constraining the enclosure's location extends over 1,000 feet in either direction along both sides of the alignment, prohibiting its relocation.

<u>Impacts</u>

Alignment in Pavement/Road Crossings

The design, as proposed, will not adversely affect the design, construction, stability, traffic, safety, environmental commitments, maintenance, or operation of the highway. The alignment has been located 5-feet off the edge of the existing utilities, to avoid future conflicts with repairs or replacement. The installation of the duct bank and pavement restoration will be designed and constructed in accordance with conditions outlined in the NHDOT's April 3, 2017 letter to the New Hampshire Site Evaluation Committee. The installation's proposed depth meets NHDOT's criteria relating to the structural box to minimize any potential conflicts with maintenance and future highway projects. A traffic control plan has been submitted to the NHDOT for this design and complies with the Manual on Uniform Traffic Control Devices.

Splice Enclosures in Pavement

The design, as proposed, will not adversely affect the design, construction, stability, traffic, safety, environmental commitments, maintenance, or operation of the highway. The proposed splice enclosures and ancillary closures will be of a minimum rating of HS-20, in accordance with NHDOT

requirements. The installation of the enclosures and pavement restoration will be designed and constructed in accordance with conditions outlined in the NHDOT's April 3, 2017 letter to the New Hampshire Site Evaluation Committee. The installation's proposed depth meets NHDOT's criteria relating to the structural box to minimize any potential conflicts with maintenance and future highway projects.

Supporting Documentation

Alignment in Pavement/Road Crossings
See attached Exhibit A showing a plan and profile.

Splice Enclosures in Pavement
See attached Exhibits A through C showing a plan, profile, and section.

PRELIMINARY - NOT FOR CONSTRUCTION

N/F
SABOURN, ROY A. & TERRY A.
TMP# 105-34
70 LOST RIVER ROAD

N/F
DRISCOLL, DAVID M. & JUNE F.
TMP# 105-35
62 LOST RIVER ROAD

N/F
FADDEN JR., JAMES
TMP# 105-36
44 LOST RIVER ROAD

N/F
CARTER, STEVEN C. & EILEEN
TMP# 105-37
42 SCHOOL STREET

N/F
CALLAHAN, JOSEPH & MARY
TMP# 105-93
39 LOST RIVER ROAD

N/F
DAVID TALBOT 2000 REVOCABLE TRUST
TMP# 105-92
8 COUTNEY ROAD

N/F
RICE, SCOTT G. & MARGARET O.
TMP# 106-105
21 COURTNEY ROAD

HILTZ DRIVE
SCHOOL STREET
FADDEN DRIVE
NH 112 (LOST RIVER ROAD)
COURTNEY ROAD

PC: 1445+04.91
HDD END STA 1445+05
SPLICE ENCLOSURE IN PAVEMENT EXCEPTION REQUEST, STA 1445+50±, SEE SECTION A-A, EXHIBIT B
EDGE OF PAVEMENT
SEE TRENCH DETAIL, SHEET WMNFC503
PC: 1447+21.18
PT: 1447+32.69
±320kV CABLE ROUTE
MINIMUM REQUIRED CONSTRUCTION WORKSPACE
ALIGNMENT IN PAVEMENT EXCEPTION REQUEST START STA 1449+90±
PROPOSED ±320kV CABLE ROUTE IN PAVEMENT, EXCEPTION REQUEST
PC: 1449+91.17
PT: 1450+02.74
PC: 1451+11.86
PT: 1451+24.12
PC: 1451+78.03
MATCH LINE STA 1451+50
MATCH LINE STA 1445+50
SEE EXCEPTION REQUEST 171 FOR HDD
PROPOSED CHANGE IN ALIGNMENT OF ±320kV CABLE ROUTE
SEE TRENCHLESS INSTALLATION DETAILS, DRAWING WMNFTR038
FIELD VERIFY SEWER INVERT
1" Iron Pipe NHEC064/5
NHEC064/4
NHEC064/3
NHEC064/32
NHEC064/7
NHEC064/6
NHEC01-104
BH38C
San MH TF=737.43
San MH TF=737.51
San MH TF=737.35 8" Inv=729.1
San MH TF=742.80
San MH TF=738.91
San MH TF=755.68 FM INV=746.6
Conc Mon NHEC064/8.3
Inv=733.9
Inv=735.4
Inv=733.3
Inv=734.5
Inv=733.2
737.3
738.1
740.8
738.2
737.4
754.7
756.0
755.4
12"HPE
20'
19'

UG ALIGNMENT PLAN
SCALE: 1"=30'

C064/9

EXISTING 6" WATER MAIN, FIELD VERIFY DEPTH
EXISTING 12" HDPE CULVERT
EXISTING 12" CMP CULVERT
TRANSITION FROM HDPE TO PVC
EXISTING GRADE
SEE EXHIBIT B
50'R
SPLICE LOCATION @ 1445+50
±320kV CABLE ROUTE
BORING 39C
STA 1444+20±
BORING DEPTH=65.0'
DEPTH TO ROCK=43.8'
THERMAL RESISTIVITY 70
SEE TRENCHLESS INSTALLATION DETAILS, DRAWING WMNFTR038
ACTUAL PROPOSED DEPTH OF UTILITIES IN PROFILE TO BE UPDATED IN FINAL DRAWINGS
EXISTING 12" HDPE CULVERT
30" MIN COVER, TYP.
2' MIN COVER FROM UTILITY, TYP.
100'R, TYP UNLESS OTHERWISE NOTED
EXISTING SEWER MAIN, FIELD VERIFY DEPTH AND SIZE
EXISTING 6" WATER MAIN FIELD VERIFY DEPTH
EXISTING 4" FORCE MAIN, FIELD VERIFY DEPTH
EXISTING 6" WATER MAIN, FIELD VERIFY DEPTH
EXISTING 12" WATER MAIN FIELD VERIFY DEPTH
25'R
50'R
WHERE DEEPER TRENCH IS REQUIRED, SEE GENERAL NOTE 17 ON SHEET WMNFG001, TYP.

UG ALIGNMENT PROFILE
HOR. SCALE: 1"=30'
VER. SCALE: 1"=10'

737.9 737.5 737.2 737.3 736.9 737.1 737.1 737.8 738.7 740.7 742.4 746.6 751.1 753.4 754.9 755.6 755.9 755.3

1443+00 1443+50 1444+00 1444+50 1445+00 1445+50 1446+00 1446+50 1447+00 1447+50 1448+00 1448+50 1449+00 1449+50 1450+00 1450+50 1451+00 1451+50

30 15 0 30 60 HOR. SCALE: 1" = 30'
10 5 0 10 20 VERT. SCALE: 1" = 10'

NO.	REVISION	DRWN	DATE	CHKD	APPRV.
0	EXCEPTION REQUEST	TDD	07/12/17	MRR	TMH

SGC Engineering, LLC
PAR Electrical Contractors, Inc.
THE NORTHERN PASS
Transmission Business

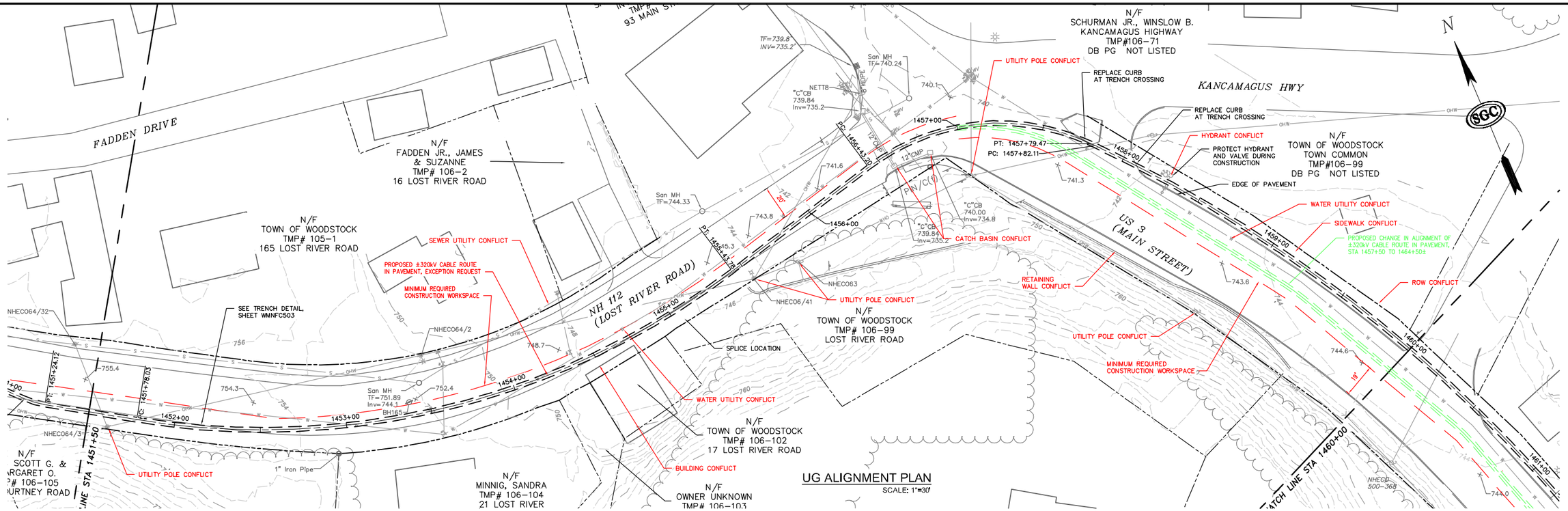
EXCEPTION 172-ALIGNMENT/SPLICE ENCLOSURE IN PAVEMENT
NPT WMNF-UNDERGROUND ALIGNMENT
WMNF SECTION-STA 1445+50 TO STA 1467+10±
SCALE: H 1"=30', V 1"=10'
DATE: 07/2017

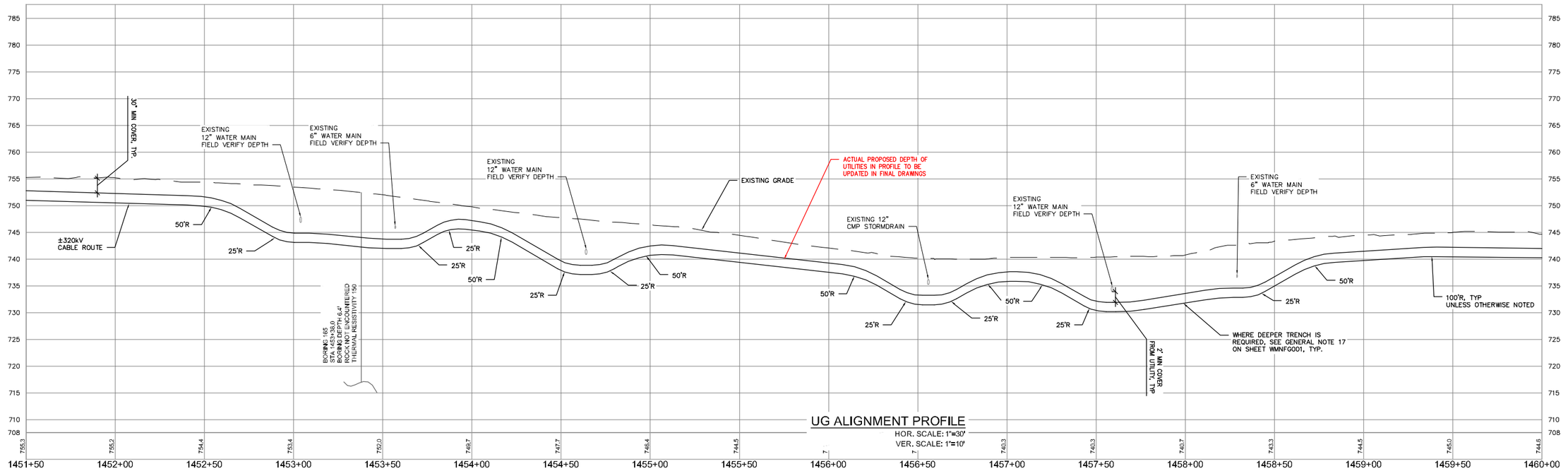
DES.: MRR CHK: TDD
DRW.: MRR APR: TMH

TOWN: WOODSTOCK

TRANSMISSION LINE: WMNF

EXHIBIT A.1





PRELIMINARY - NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
0	EXCEPTION REQUEST	07/31/17	TDD	MRR	TMH

SGC Engineering, LLC

PAR

THE NORTHERN PASS

Transmission Business

EXCEPTION 172–ALIGNMENT/SPLICE ENCLOSURE IN PAVEMENT
NPT WMNF–UNDERGROUND ALIGNMENT
WMNF SECTION–STA 1445+50 TO STA 1467+10±

DATE: 07/2017

SCALE: H 1"=30', V 1"=10'

DES: MRR | CHK: TDD
DRW: MRR | APR: TMH

TOWN: WOODSTOCK

TRANSMISSION LINE: WMNF

EXHIBIT A.2

PRELIMINARY - NOT FOR CONSTRUCTION

N/F
KILCULLEN, BRIAN M.
68 MAIN STREET
TMP#107-13
DB 2421 PG 358

N/F
TOUCHETTE, DAVID J. & MARTHA C.
60 MAIN STREET
TMP#107-14
DB 4049 PG 464

N/F
CAWLEY JR., FRANK R.
54 MAIN STREET
TMP#107-15
DB 3692 PG 864

N/F
CAWLEY JR., FRANK R.
MAIN STREET
TMP#107-15
DB 3692 PG 864

MONTAUP DRIVE

N/F
CATUCCI, KIM A.
36 MAIN STREET
TMP#107-16
DB 3403 PG 32

N/F
OSTUNI, SERAFINO
28 MAIN STREET
TMP#107-17
DB 4099 PG 427

PROPOSED CHANGE IN ALIGNMENT OF ±320kV CABLE ROUTE. PROPOSED CABLE ROUTE TO GO UNDER EXISTING 15" RCP CULVERT AND COURTNEY LANE WATER SERVICE

CATCH BASIN CONFLICT

SEE TRENCH DETAIL, SHEET WMNFC503

HYDRANT CONFLICT

RESET PROPERTY PIN

ROW CONFLICT

PROPOSED CHANGE IN ALIGNMENT OF ±320kV CABLE ROUTE. PROPOSED CABLE ROUTE TO BE MOVED TO MAINTAIN 5' OF SEPARATION FROM WATER MAIN

EDGE OF PAVEMENT

PROPOSED CHANGE IN ALIGNMENT OF ±320kV CABLE ROUTE. PROPOSED SPLICE ENCLOSURE TO BE MOVED TO MAINTAIN 5' OF SEPARATION FROM WATER MAIN

SEE EXCEPTION REQUEST 173 FOR HDD

END EXCEPTION REQUEST STA 1467+10±

HDD START STA 1467+10

PI: 1467+09.10

PI: 1461+29.06

PC: 1463+46.92

PT: 1463+49.60

PC: 1464+16.35

PT: 1464+38.87

PT: 1464+70.04

PC: 1464+46.52

PC: 1465+82.21

PT: 1465+93.16

US 3 (MAIN STREET)

6" CMP

15" RCP

12" RCP

COURTNEY ROAD

WATER UTILITY CONFLICT

SEWER UTILITY CONFLICT

MINIMUM REQUIRED CONSTRUCTION WORKSPACE

PROPOSED CHANGE IN ALIGNMENT OF ±320kV CABLE ROUTE IN PAVEMENT, STA 1457+50 TO 1467+00±

CATCH BASIN CONFLICT

SEWER UTILITY CONFLICT

UTILITY POLE CONFLICT

SPLICE ENCLOSURE IN PAVEMENT EXCEPTION REQUEST, STA 1466+50±, SEE SECTION B-B, EXHIBIT C

SEE TRENCHLESS INSTALLATION DETAILS, DRAWING WMNFTR039

MATCH LINE STA 1460+00

MATCH LINE STA 1468+50

N/F
BERTRAND, STEPHEN & DIANE
53 COURTNEY ROAD
TMP#107-69
DB 3916 PG 159

N/F
YARNELL, MICHAEL & ROSANNA
57 MAIN STREET
TMP#107-55
DB 4159 PG 179

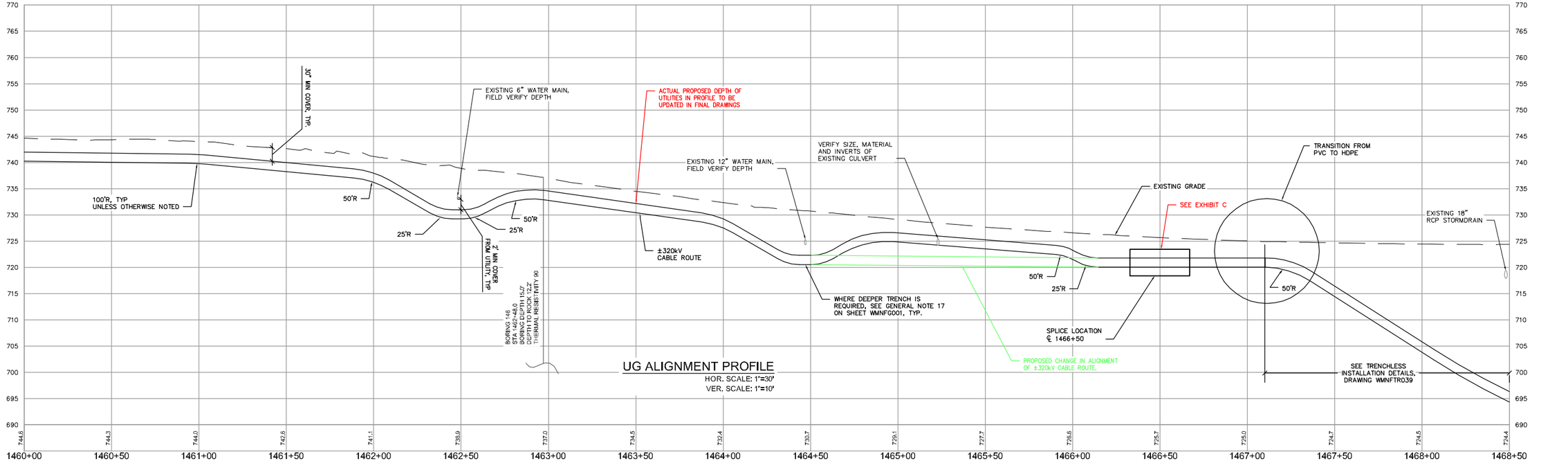
N/F
FARWELL, RANDALL L.
51 MAIN STREET
TMP#107-54
DB 3933 PG 381

N/F
AURELIO, FRANK L. & PEGGY A.
49 MAIN STREET
TMP#107-53
DB 2068 PG 58

N/F
CLEMENCE-SCHREINER, DIANE & DAVID
43 MAIN STREET
TMP#107-52
DB 3092 PG 564

N/F
COUTTS ESTATE, ISABELLA S.
37 MAIN STREET
TMP#107-51
DB 873 PG 345

UG ALIGNMENT PLAN
SCALE: 1"=30'



UG ALIGNMENT PROFILE
HOR. SCALE: 1"=30'
VER. SCALE: 1"=10'

30 15 0 30 60 HOR. SCALE: 1" = 30'

10 5 0 10 20 VERT. SCALE: 1" = 10'

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
0	EXCEPTION REQUEST	07/31/17	TDD	MRR	TMH

SGC Engineering, LLC
a Quanta Services Company

PAR ELECTRICAL CONTRACTORS, INC.

THE NORTHERN PASS

Transmission Business

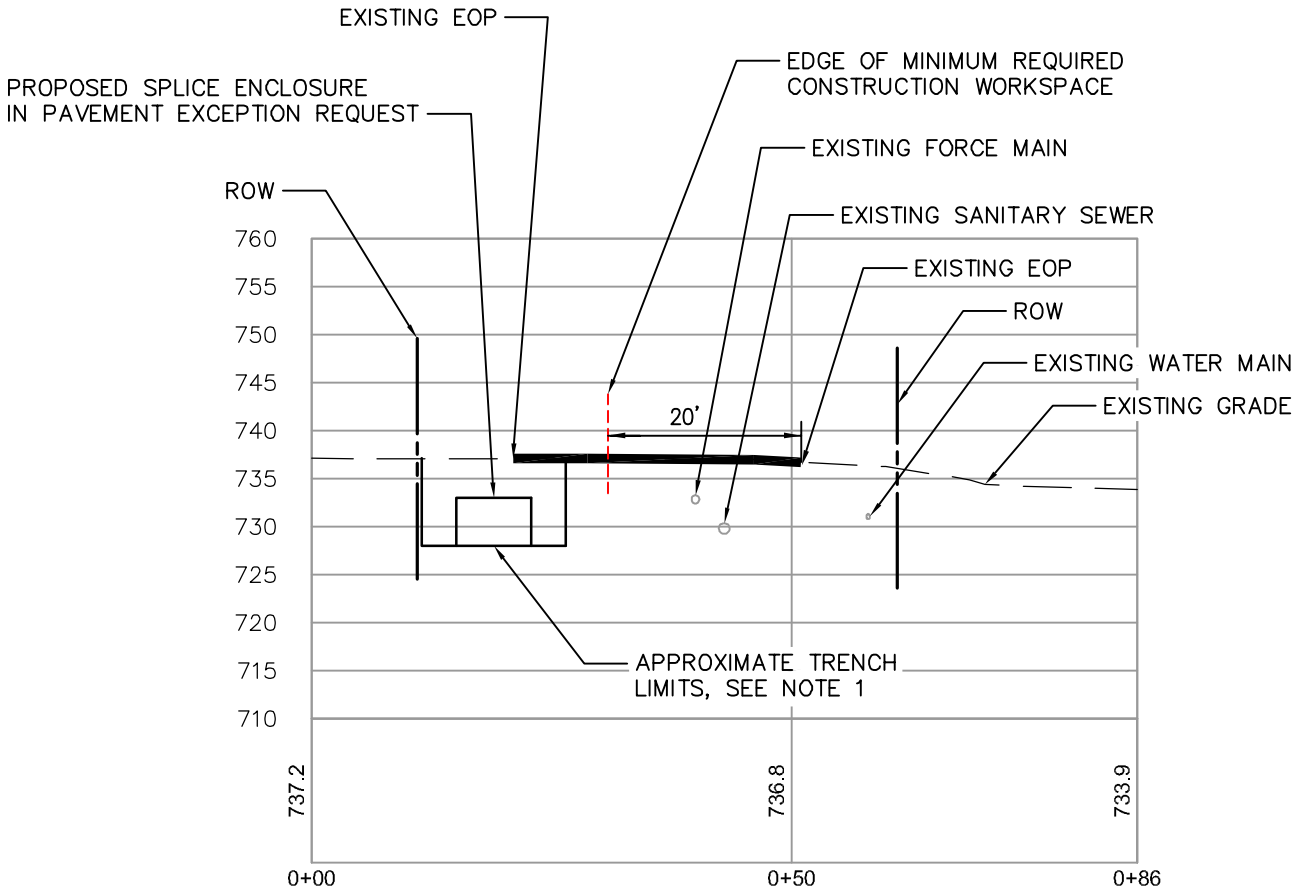
EXCEPTION 172-ALIGNMENT/SPLICE ENCLOSURE IN PAVEMENT
NPT WMNF-UNDERGROUND ALIGNMENT
WMNF SECTION-STA 1445+50 TO STA 1467+10±
SCALE: H 1"=30', V 1"=10'
DATE: 07/2017

DES: MRR CHK: TDD
DRW: MRR APR: TMH

TOWN: WOODSTOCK

TRANSMISSION LINE: WMNF

EXHIBIT A.3



SECTION A-A

SCALE: 1"=20'

NOTES:
1. TRENCH WIDTH SHOWN TO BE MAINTAINED USING TRENCH BOXES

SCALE: 1" = 20'

20 10 0 20 40

JOB NO.: 1384001

TITLE:

EXCEPTION 172
SPLICE ENCLOSURE IN PAVEMENT
NPT-WMNF UNDERGROUND ALIGNMENT
WMNF SECTION-STA 1445+50±
TOWN: WOODSTOCK

PREPARED FOR:

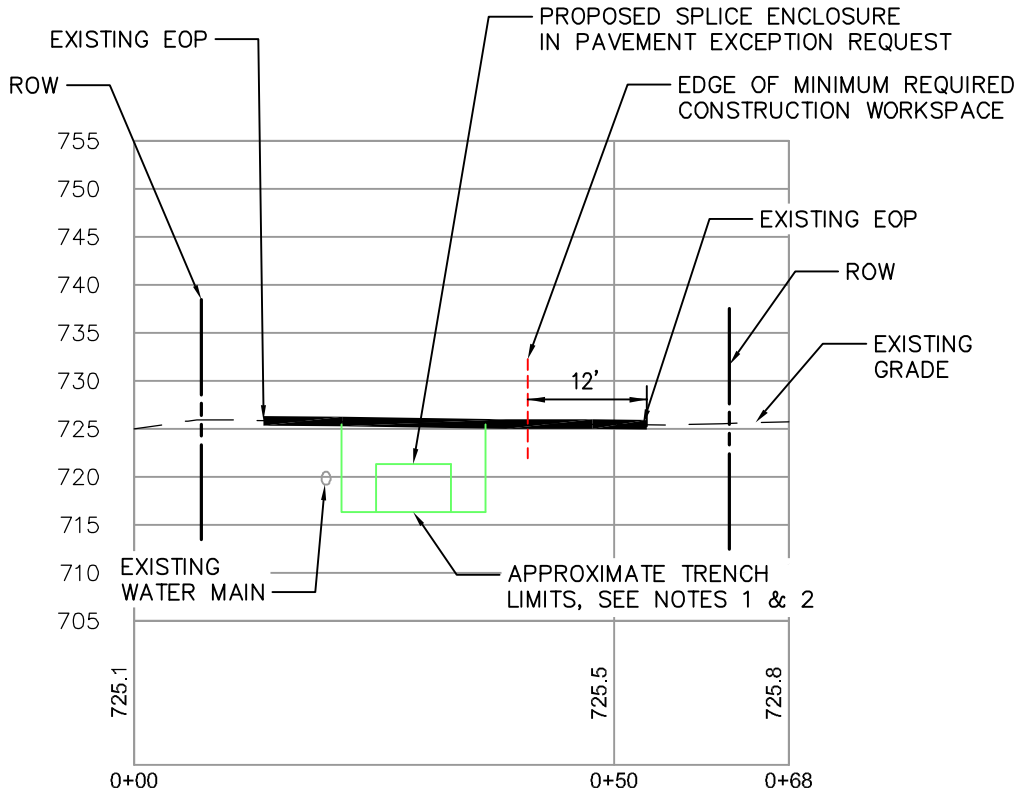
NH DOT
7 HAZEN DRIVE
CONCORD, NH

REVISIONS:

NO.	DATE	EXCEPTION REQUEST
0	06/06/2017	

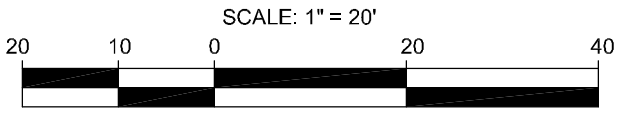
EXHIBIT NO.: B | DATE: 06/2017 | DRAWN: MRR | SCALE: 1" = 20'

SGC ENGINEERING, LLC
• Civil Design & Survey Engineering
• Environmental & Regulatory Permitting
• Electrical Power Systems Engineering
SERVING OUR CLIENTS IN THE U.S.A. & CANADA
501 County Road, Westbrook, Maine 04092, Tel: 207-347-8100, Fax: 207-347-8101
40 Harlow Street, Suite 2, Bangor, Maine 04401, Tel: 207-217-5769, Fax: 207-217-6018
14 School Street, Suite 203-5, Bristol, VT 05443, Tel: 802-735-0258
Galleria Tower 1, Suite 2478, 2700 Post Oak Boulevard, Houston, TX 77056



SECTION B-B

SCALE: 1"=20'



NOTES:
1. TRENCH WIDTH AS SHOWN TO BE MAINTAINED USING TRENCH BOXES
2. PROPOSED CABLE ROUTE AND SPLICE ENCLOSURE TO BE MOVED TO MAINTAIN 5 FEET OF SEPARATION FROM WATER MAIN

JOB NO.: 1384001

TITLE:

EXCEPTION 172
SPLICE ENCLOSURE IN PAVEMENT
NPT-WMNF UNDERGROUND ALIGNMENT
WMNF SECTION-STA 1466+50±
TOWN: WOODSTOCK

PREPARED FOR:

NH DOT
7 HAZEN DRIVE
CONCORD, NH

REVISIONS:

NO.	DATE	EXCEPTION REQUEST
0	06/06/2017	

EXHIBIT NO.: C | DATE: 06/2017 | DRAWN: MRR | SCALE: 1" = 20'

SGC ENGINEERING, LLC
• Civil Design & Survey Engineering
• Environmental & Regulatory Permitting
• Electrical Power Systems Engineering
SERVING OUR CLIENTS IN THE U.S.A. & CANADA
501 County Road, Westbrook, Maine 04092, Tel: 207-347-8100, Fax: 207-347-8101
40 Harlow Street, Suite 2, Bangor, Maine 04401, Tel: 207-217-5769, Fax: 207-217-6018
14 School Street, Suite 203-5, Bristol, VT 05443, Tel: 802-735-0258
Galleria Tower 1, Suite 2478, 2700 Post Oak Boulevard, Houston, TX 77056