

Exception Request No.: 65 (Rev 1)
Section: WBR3
Town: Thornton
Highway: US 3 (Tier 2)
Station: 1830+00±
Drawing No.: WBR3 C141
Survey Report Reference No.: WBR3 C137
Exception Type: Crossing Over Existing Utility/Drainage

Traffic Information

NHS: No

ADT: 955

Traffic Control Type: Alt 1-way

Traffic Control Duration: Traffic control duration is estimated to be 6 days for the proposed installation. If the requested exception is not granted, NPT expects an additional 1-2 weeks of work requiring traffic control to install the duct bank below the drainage structure.

Summary of Justification for Exception

NPT is requesting an exception from the UAM guidelines for crossing above an existing 36-inch RCP culvert on US 3, Daniel Webster Highway at station 1830+00±. (See Exhibit A).

There is 10-feet of cover over the existing 36-inch reinforced concrete pipe (RCP) culvert. The proposed alignment is set outside the pavement and over the existing utility to avoid road closures or other significant traffic impacts, unreasonable costs associated with a deeper excavation, and increased construction width that will extend the duration of construction and traffic impacts. The attached exhibits have been provided for this location to illustrate the constraints associated with installing the ductbank below the existing RCP culvert.

Technical Discussion of Justification of Exception

The vertical positioning of the cable trench is constrained by the depth of the existing culvert (ten feet to the top of the culvert). (See Exhibits A and B.) Crossing under the existing culvert to meet the required 2-foot minimum separation will require a greater separation of the conduits and cable to accommodate shoring and thermal design criteria for the electric cables resulting from the additional depth. This trench width and additional offsets necessary for construction would likely result in significant traffic impacts, including extended duration of construction within roadway to allow for sheeting installation and removal and extensive excavation due to the depth and width of the trench. We estimate that these construction alternatives will add one to two weeks to the traffic impacts. Finally, we estimate the increase in cost associated with crossing underneath the culvert would be approximately \$130,000 for this 200 foot section. (See Exhibit C.)

We have also evaluated a trenchless option to pass under the culvert. The trenchless installation will be unreasonably costly (a net estimated increase of \$2,069,100 for the 36-inch culvert crossing section). (See cost estimate attached in Exhibit C.) Also, traffic impacts would be increased for a trenchless installation due to the addition of trenchless work areas and the extended duration of installation.

Road closures are not needed for the proposed installation, which thereby minimizes traffic impacts and attendant safety issues.

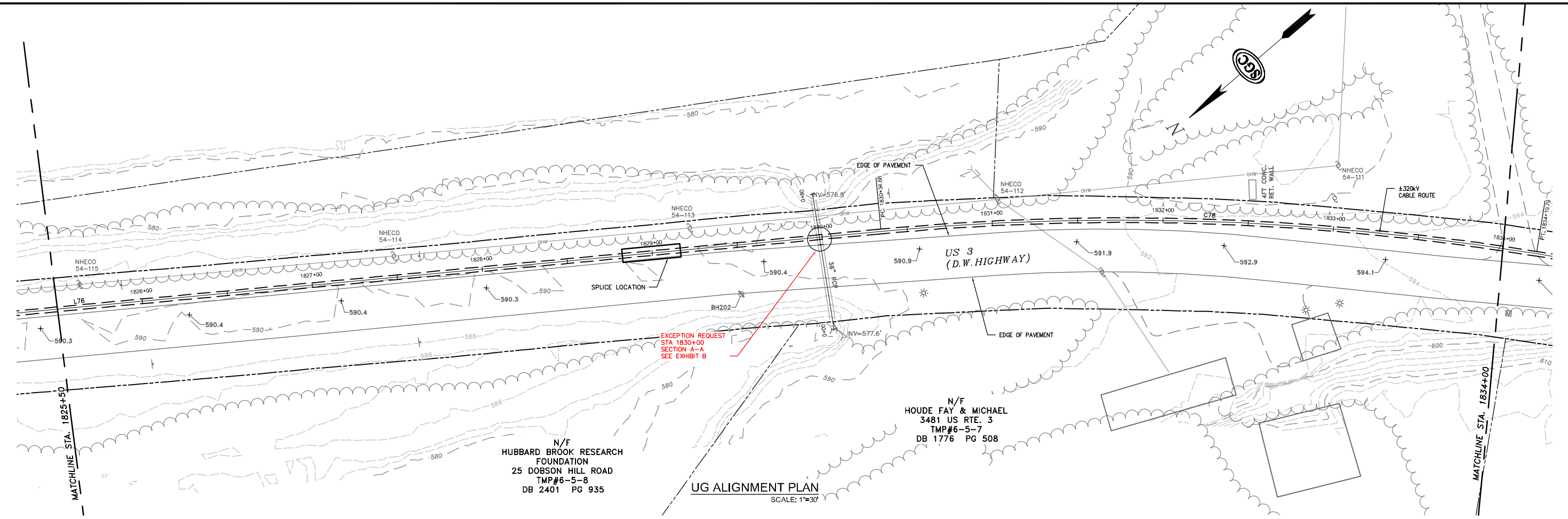
Excavation limits and work areas are shown on the attached drawings (Exhibits A and B). During construction, one lane will remain open to traffic at all times.

Impacts

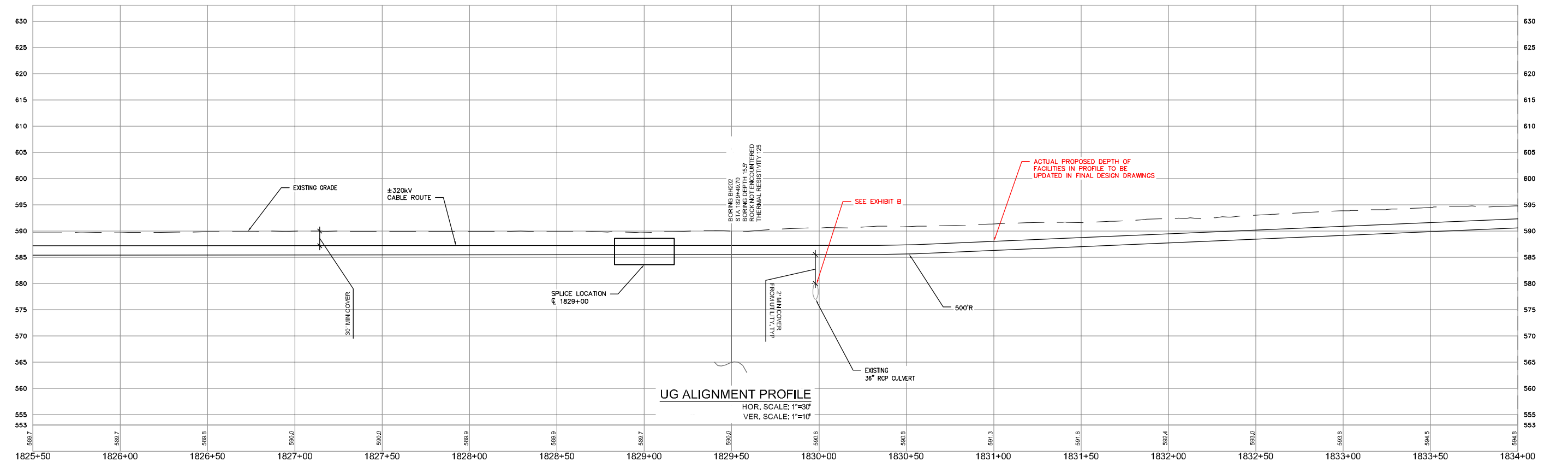
At all locations where the new ductbank is constructed over an existing drainage structure or utility, NPT will encase the facility in a concrete ductbank reinforced with rebar for a length to exceed a 2:1 slope from the bottom/center of the drainage structure (or utility) to the surface. At a minimum, this will involve a 20-foot reinforced section on each side of the crossing to form a self-sustaining bridge that will allow for excavation under the duct bank for purposes of future maintenance of existing utilities or drainage structures. This reinforced concrete duct bank shall be designed by a Professional Engineer licensed in the State of New Hampshire. In connection with future maintenance activities, especially related to the culvert, NPT will provide any and all required support, including but not limited to, providing crews to assist while work is being conducted in the vicinity of the culvert.

Supporting Documentation

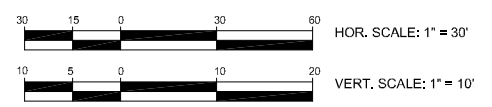
See attached Exhibits A and B showing a plan, profile and section for the proposed installation. See Exhibit C for cost estimates.



UG ALIGNMENT PLAN
SCALE: 1"=30'



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



NO.	REVISION	DATE	BY	CHKD	APPRV.
0	EXCEPTION REQUEST	05/19/17	TD	MRR	TMH



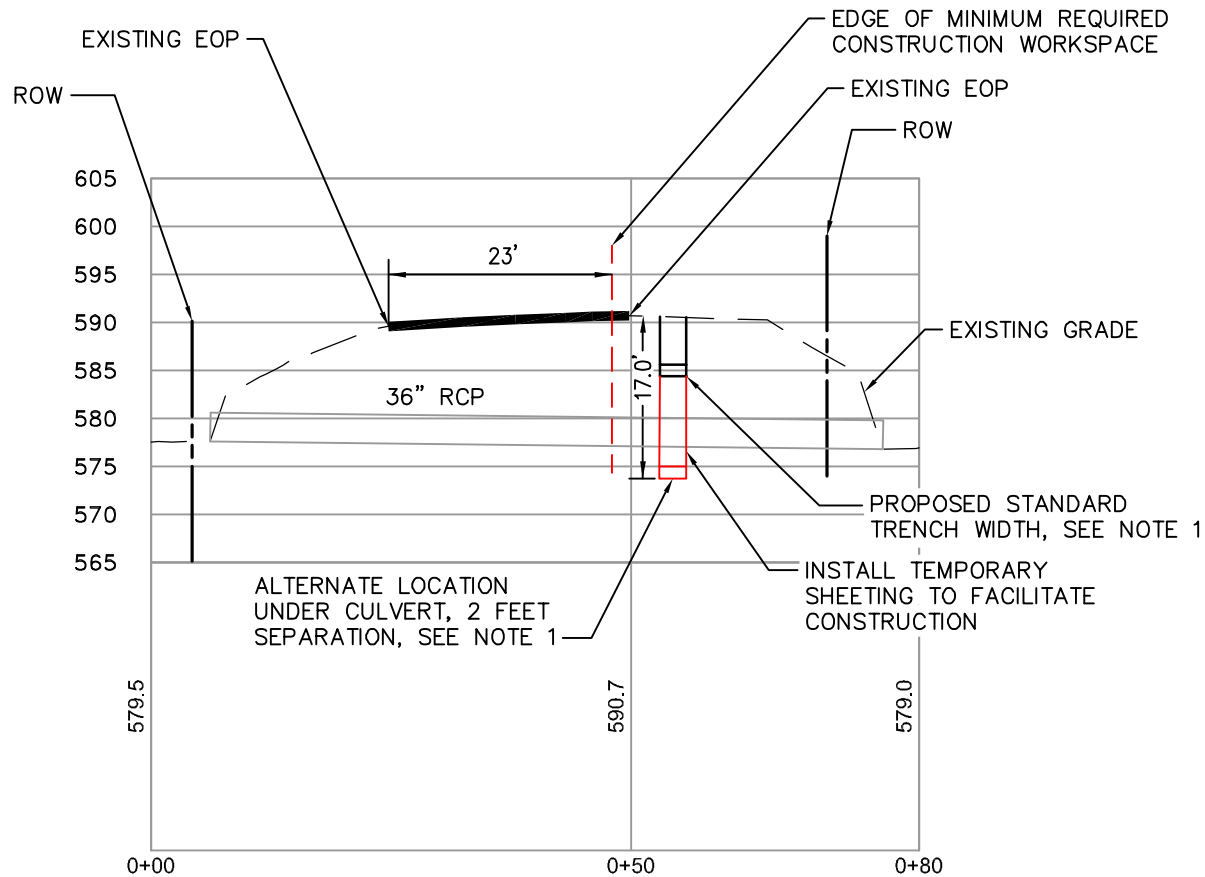
Transmission Business

EXCEPTION 65-CROSSING OVER EXISTING UTILITY/DRAINAGE
NPT WBR3-UNDERGROUND ALIGNMENT
WBR3 SECTION-STA. 1830+00
SCALE: DATE: 05/20/17

DES: MRR CHK: TD
DRW: MRR APR: TMH
TOWN: THORNTON

TRANSMISSION LINE:
WBR3

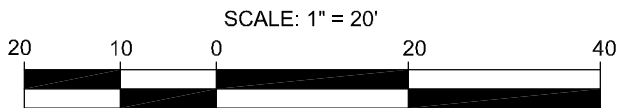
EXHIBIT A



SECTION A-A
SCALE: 1"=20'

NOTES:

1. TRENCH WIDTH SHOWN TO BE MAINTAINED USING TRENCH JACKS AND SHEETING



JOB NO.: 1384001

TITLE:
EXCEPTION 65
CROSSING OVER EXISTING UTILITY/DRAINAGE
NPT-WBR3 UNDERGROUND ALIGNMENT
WBR3 SECTION-STA 1830+00±
TOWN: THORNTON

PREPARED FOR:
NH DOT
7 HAZEN DRIVE
CONCORD, NH

REVISIONS:

NO.	DATE	EXCEPTION REQUEST
0	05/19/2017	



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: 207-547-8100
Fax: 207-547-8101

40 Harbor Street, Suite 2
Bangor, Maine 04401
Tel: 207-217-6759
Fax: 207-217-0018

14 School Street, Suite 203-A
Bristol, VT 05443
Tel: 802-256-9256

Galathea Tower 1, Suite 2473
2700 Post Oak Boulevard
Houston, TX 77056

EXHIBIT NO.: B

DATE: 05/2017

DRAWN: MRR

SCALE: 1" = 20'