

SECTION 40

ENVIRONMENTAL PROTECTION

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40.6-1	Burnham Road South Geometric Design Data
40.8-1	Fugitive Dust Control Measures

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LIST OF EXHIBITS

EXHIBIT NUMBER	EXHIBIT TITLE
40.4-1	Stream Buffer Zone
40.6-1	Burnham Road Reroute Phase 3 and 4 (Exhibit Sheet 1 to 25)

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LIST OF APPENDICES

APPENDIX

NUMBER APPENDIX TITLE

40.A	Burnham Road South Supporting Design Data for Drainage Control Structures
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SECTION 40

ENVIRONMENTAL PROTECTION

LIST OF REVISIONS DURING PERMIT TERM

REV.		DATE
NUMBER	REVISION DESCRIPTION	APPROVED

SECTION 40 ENVIRONMENTAL PROTECTION

This No Name Permit (NNP) permit application package (PAP) section describes the consideration that was given to making the proposed surface mining and reclamation activities consistent with surface owner plans and applicable federal, tribal, state, and local land use policies, plans and programs and the measures to be used to maximize the use and conservation of the coal resource. Protection plans for perennial and intermittent streams, public parks and historic places, public roads, utility installations, fish and wildlife resources, and alluvial valley floors (AVF) are described below. This section also describes the measures to be taken to control and prevent air pollution attendant to erosion, and the measures to be taken to temporarily seal exploration holes, boreholes, wells, and other underground openings.

40.1 Conformance of Surface Mining Activities with Land Use Plans, Policies, and Programs

The post-mining land use (PMLU) for NNP is grazing and wildlife habitat. These land uses are consistent with the pre-mine lands uses described in Section 10 Land Use and conform to the policies and plans of the Navajo Nation, Bureau of Indian Affairs (BIA), and the local Navajo Nation chapters. Further discussion on how the PMLU conform to the land use plans, policies, and programs is presented in Section 30 Post-Reclamation Land Use.

NTEC will typically notify affected residents and permittees prior to the next 5-year permit term when mining activities may affect homes, grazing areas, access routes, utilities, or related land uses. Notification timeframes may vary based on each resident's lease agreement. NTEC will coordinate with each resident or permittee on a case-by-case basis because site conditions, land use needs, and individual circumstances vary.

40.2 Coal Recovery and Conservation

Surface mining operations at NNP will be conducted in a manner that maximizes the utilization and conservation of the coal resource, using the best appropriate technology currently available to maintain environmental integrity and minimize the potential for future surface mining operations to re-affect the land, in compliance with 30 CFR 816.59. NTEC will conduct surface mining operations in a manner that develops the coal resource within the permit area in compliance with commitments to the Navajo Nation contained in the Navajo Transitional Energy Company (NTEC) coal lease agreement, described in Section 6 Land Ownership and Control. NTEC complies with a resource recovery and protection plan covering all surface mining and reclamation activities at NNP in compliance with 43 CFR 3482.1(b). Augering technology or in-situ processing activities will not be employed to maximize coal recovery and conservation, as described in Section 20 Mining Operations.

NTEC maximizes coal recovery in NNP's permit boundary by optimizing blasting, stripping, coal extraction, training, planning, and reclamation activities. These topics are presented in greater detail in Part

3 Operations Plan and Part 5 Reclamation Plan of this PAP. Overburden blast holes are managed in a way to minimize potential fracturing of the coal by overburden blasting and subsequent loss of loose coal during stripping. Coal blast holes are managed in a way to optimize fragmentation and reduce scatter. NTEC's equipment operators minimize gouging the coal seam with equipment buckets or blades during stripping. Special care is taken not to strip into the coal seam when stripping near a known fault. Loose coal is generally either pushed onto previously shot coal or wind-rowed to be recovered with mining. Coal wedges may be used to reduce spoil encroachment. Recovery of both coal wedges and fenders is maximized to the extent safely possible. NTEC implements a comprehensive training program for all equipment operators with resource recovery as an integral part of the program. This training aids in achieving the goal of maximum economic recovery at NTEC. Follow-up reviews are continually performed to monitor operator proficiency and to identify further training needs. Planning also plays a major role in maximum economic recovery by attempting to identify all coal that is recoverable and then scheduling it into the production sequence. This planning includes consideration of marginal coal seams (i.e., thin, out-crop, or low-quality seams) and pit match-ups, as well as pit orientation and geometry (width and length). NTEC plans to reclaim NNP to an approximate original contour that maximizes the backfilling of boxcut materials and leaves no excess spoil piles or highwall spoil piles. Detailed reclamation plans are provided in Part 5 of this PAP.

Although operations at NTEC are engineered and planned to recover the maximum amount of coal, a small percent of coal is lost in boxcuts, coal wedges, coal ribs, and at the top and bottom of coal seams. Boxcut placement is dependent on such factors as coal extent (crop), coal quality, spatial relationship to the lease boundary, depth of the coal seams, quantity of spoil material rehandle, stockpiles, haulage ramp configuration, and haul ramp alignment. Coal recovery in the boxcuts is in the 80% to 95% range, with the variability due to the difficult stripping and mining conditions inherent to boxcut operations. Boxcutting represents only a small percentage of the total stripping in the permit area. There are a number of operational and safety-related conditions that necessitate limited coal losses. In general, two types of wedge losses occur: a wedge left on upper seams in multiple seam pits as a safety berm and a wedge left on spoil-encroached seams as a spoil barrier. A small percentage of coal may be lost on the top and bottom of the coal seam and as coal ribs due to the geologic condition of the coal and due to the equipment utilized in the stripping and mining sequences.

40.3 Signs and Markers

Signs identifying NTEC's mailing address, phone number, the current Office of Surface Mining Reclamation and Enforcement (OSM) permit identification number, and blast warning signs will be posted at all points of public or permittee road access into the permit area. The signs shall be made of durable materials and maintained until the release of all bonded lands. Further discussion of information contained on the blast warning signs is provided in Section 20 Mining Operations.

Signs identifying soil stockpiles (topdressing and/or regolith) and stream buffer zones will be made of durable materials and routinely checked and maintained.

Permit markers will be established around the perimeter of the NNP permit area prior to commencing coal mining and reclamation activities. These markers will be maintained until the release of all bonded lands.

40.4 Stream Buffer Zone Protection

The perennial and intermittent streams identified within the mine permit area are Pinabete Arroyo and No Name Arroyo, as described in Section 18 Water Resources of this PAP. In accordance with 30 CFR § 780.28 and § 816.43, to allow for mining operations NTEC will use a temporary diversion of Pinabete Arroyo into a portion of the No Name Arroyo, as described in Section 26 Drainage Control Plan. A portion of this diversion and its associated structures will occur within No Name Arroyo, downstream of the No Name Impoundment, and will be designed, constructed, and maintained in accordance with the requirements of 30 CFR § 816.43(b)(1). A road crossing and impoundment were constructed in No Name Arroyo by customary land users prior to NTEC permitting and mining activities. NTEC has identified the portions of No Name Arroyo within the NTEC lease area upstream of the pre-mine impoundment as a stream buffer zone area. The identified stream buffer zone area can be found in Exhibit 40.4-1.

The Pinabete Diversion has been located and designed to minimize adverse impacts as described in Section 26 Drainage Control Plan and Section 41 Probable Hydrologic Consequences. Section 26 Drainage Control Plan describes the design and construction of the diversion, drainage and sediment control plan for the diversion, and a description of how the diversion complies with Surface Mining Control and Reclamation Act (SMCRA) design requirements. The details of stream channel restoration after the completion of mining to meet 30 CFR §816.43 are included in Part 5 of this PAP.

In accordance with 30 CFR § 816.57(b)(2), NTEC may utilize the exceptions described by the stream buffer zone area regulations to construct crossings to facilitate roads, railroads, conveyors, pipelines, utilities, or similar facilities across No Name Arroyo.

The stream buffer zone will be marked with signs posted at distances measured 100 ft horizontally from the centerline of No Name Arroyo, upstream of the No Name Impoundment. Signs will be placed along the length of the stream buffer zone for an appropriate distance to adequately delineate its extent (Exhibit 40.4-1).

40.5 Protection of Public Parks and Historic Places

There are no publicly owned parks within or adjacent to the NNP area, therefore, there are no publicly owned parks that could be expected to be adversely affected by the surface coal mining operations. A survey of cultural resources and historic properties, presented in Section 11 Cultural, Historic, and Archeological Resources, was completed in 2008 for the NNP area. This survey recommended 166 sites eligible or potentially eligible for inclusion on the National Register of Historic Places (NRHP). The plans for preventing and minimizing adverse impacts and the mitigation and treatment measures to be taken to protect the historic places will be developed in accordance with the Programmatic Agreement which is provided as an appendix in Section 11 Cultural, Historic, and Archeological Resources.

40.6 Public Roads Protection Plan

NTEC proposes to realign the segment of Burnham Road (BIA N5082) through the NNP area. The alignment of the new road will be fully within the NTEC's lease area along the eastern boundary and reconnected to the existing road. The realignment will facilitate the construction of the Pinabete Diversion, other mine support facilities, and mining activities. It will also enhance the safety of the public using the road by relocating the road away from mining activities. NTEC will follow the procedures described in 30 CFR 761.14 and obtain all the necessary approvals for construction of the road realignment.

Preliminary construction plans have been developed by Geomat, Inc. of Farmington, New Mexico for the relocation of the existing Burnham Road. The preliminary road alignment travels northward from No Name Arroyo through the NNP area, where it connects with NTEC's proposed relocation of the Burnham Road. The detailed plan and profile designs are located in Exhibit 40.6-1 (Sheets 1 through 25). The proposed relocated road is broken into two phases, Phase 3 is 4.91 mi in length and Phase 4 is 4.66 mi in length. The geometric design data are presented in Table 40.6-1.

The road is comprised of two 12-ft lanes with 6-ft shoulders. The cut and fill slopes are 4 horizontal to 1 vertical (4h:1v) except at culvert locations with guardrail where the fill slopes behind the guardrail are 2h:1v to minimize the required amount of fill.

The road alignment intersects 10 drainages along its length. These drainage crossings are comprised of ten crossings with corrugated metal pipes, utilizing SEDCAD™ software.

40.7 Utility Installation Disturbance Plan

There are no known oil or gas wells present within the NNP area. Within the NNP area, two residences are supplied with residential electricity by Navajo Transmission Utility Authority powerlines. The locations of these powerlines are presented on Exhibit 10.1-2. These residences will be relocated according to NTEC's relocation plan. The relocation of individuals and NTEC's relocation plan are outside of the scope of the

SMCRA regulations and therefore are not under OSM's jurisdiction. After the relocation of residences these powerlines will no longer be needed. Further information on pre-mine utilities is presented in Section 10 Land Use. Various groundwater wells, used for stock watering, are present within the permit area. The location and description of these wells are presented in Section 18 Water Resources. As mining progresses through the permit area, these wells will eventually be removed based on the long-term mine sequence provided in Section 20 Mining Operations. The replacement of pre-mine water use is discussed in Section 41 Probable Hydrologic Consequences.

Based on the discussion in Section 10 Land Use and Section 18 Water Resources, there are no other additional utilities present within the NNP permit area

40.8 Fugitive Dust Control Plan

NTEC employs a number of practices to control or minimize fugitive dust emissions from mining activities. These practices include both direct and indirect control measures. A direct control of one activity, such as haulroad watering, may result in an indirect control of adjacent areas. The direct and indirect fugitive dust control practices for road use, coal handling, and mining activities for NNP are described in Table 40.8-1.

NTEC conducts respirable dust monitoring in accordance with applicable MSHA requirements. Personal dust sampling is performed on Designated Work Positions (DWP's), which are selected to represent occupations and equipment with the highest potential for respirable coal dust exposure. These positions include equipment operating in high coal dust traffic areas as well as drilling equipment, where fine dust generation is inherent to the mining process.

Sampling is conducted using personal monitoring devices worn by operators throughout their work shift. MSHA establishes sampling requirements and verifies compliance through inspections, review of sampling records, and evaluation of sampling results. The purpose of this monitoring is to assess miner exposure to respirable dust and ensure compliance with applicable occupational exposure standards.

The dust monitoring program is based on personal exposure sampling rather than fixed-location area monitoring. Because designated work positions are selected to represent employees working in the highest dust exposure areas, they provide a reliable assessment of occupational dust exposure across mining operations. Supplemental dust evaluations may also be conducted when warranted by employee concerns, equipment issues, or unusual dust conditions.

40.9 Temporary Sealing of Bore Holes, Wells, and Other Underground Openings

NTEC will take measures to backfill and seal exploration holes, boreholes, wells, and abandoned underground openings to protect public health and safety and the environment as described in Section 22 Support Facilities and Section 32 Temporary Structures and Facilities Removal and Reclamation.

40.10 Fish and Wildlife Protection Plan

NTEC will implement various procedures to minimize or prevent impacts to wildlife during the operation of the NNP. These procedures include but are not limited to: 1) limiting the amount of vegetation and topography disturbed to only that necessary to conduct mining; 2) designing facilities, such as transmission lines, to prevent mortality of raptors; and 3) monitoring important wildlife habitat (such as rimrocks, raptor nests, and water sources) and species so appropriate plans to avoid significant undesirable impacts can be developed and implemented. Baseline wildlife species and habitats are presented in Section 16 Fish and Wildlife. The wildlife species monitoring and mitigation plans are presented in Section 42.4.

Disturbance to the native vegetation, topography, and important wildlife habitats will be minimized to only those areas necessary to safely conduct mining activities. Buffer zones, which restrict mining and reclamation activities, will be established around active (occupied) raptor nests located on and adjacent to the permit area. These buffer zones will be established through consultation with the Navajo Nation Department of Fish and Wildlife (NNDFW) and/or the U.S. Fish and Wildlife Service (USFWS) on a site- and species-specific basis, as necessary. Mining and reclamation activities will be restricted from commencing within active nest buffer zones to prevent the desertion of the nest.

Location of important wildlife habitats will be considered when planning the placement of haulroads and ancillary support facilities so they can be avoided as much as practicable. To protect raptors from direct mortality due to electrocution, the design and construction of electric power lines and other transmission facilities on the permit area will consider the guidelines set forth by the Avian Power Line Interaction Committee. Poles, frequently used by raptors, may be left in place or reestablished during reclamation to allow continued use of these sites (or other sites used frequently during the life of the mine).

In addition to limiting the disturbance areas and consideration during facility location and design, NTEC will monitor wildlife species and important wildlife habitats to protect them against adverse impacts relative to the mining operations. If raptors, sensitive species, or their habitats are affected by mining activity, NTEC will consult with NNDFW and/or the USFWS to develop plans to limit impacts. Such plans will be developed on a case-by-case basis. Any work involving the handling of raptors or sensitive species will require special permits and be closely coordinated with the NNDFW and USFWS. Further discussion on NTEC's monitoring and mitigation plans for raptors, sensitive species, and general wildlife is found in Section 42.4.

NTEC will comply with all applicable wildlife protection policies, guidelines, and regulations. Examples of these policies, guidelines, and regulations include but are not limited to: SMCRA, Endangered Species Act (ESA), NNDFW's Ferruginous Hawk Nest Protection Policy, Bald and Golden Eagle Protection Act, and New Mexico Department of Game and Fish's Guidelines And Recommendations For Burrowing Owl Surveys And Mitigation.

Section 16 Fish and Wildlife indicates that there are no permanent water bodies capable of supporting year-round fish populations within the permit area. Measures to protect hydrologic features are presented in Section 8 Compliance with Air and Water Quality Laws and Regulations and Section 41 Probable Hydrologic Consequences. NTEC will comply with all applicable Navajo Nation Environmental Protection Agency (NNEPA), United States Environmental Protection Agency (EPA), and United States Army Corps of Engineers (USACE) regulatory requirements for compliance with applicable provisions of the Clean Water Act. Copies of the applicable Clean Water Act permits are available for review at the mine site.

40.11 Protection of Alluvial Valley Floors

There are no AVF present within or adjacent to the permit area. Therefore, this section is not applicable. Discussion on AVF and OSM's negative determination for AVF is provided in Section 19 Alluvial Valley Floors.

40.11.1 Farming Activities on Alluvial Valley Floors

There is no farming, prime farmland or AVF present within or adjacent to the permit area. Consequently, there will be no interruption, discontinuance, or preclusion of farming on AVF within or adjacent to the permit area. Therefore, this section is not applicable.

40.11.2 Material Damage to Waters Supplying Alluvial Valley Floors

There are no AVF present within or adjacent to the permit area. Consequently, there will be no material damage to the quantity or quality of surface or groundwater supplied to AVF within or adjacent to the permit area. Therefore, this section is not applicable.

40.11.3 Alluvial Valley Floor Protection Plan

There are no AVF present within or adjacent to the permit area. Consequently, the surface coal mining and reclamation operations will not affect the essential hydrologic function of any AVF adjacent to or outside of the permit area. Therefore, this section is not applicable.

40.12 Certification of Designs and Exhibits

All certified exhibits for this permit application package section are available for review at NNP mine office.

Appendix 40.A

Burnham Road South Supporting Design Data for Drainage Control Structures

PHASE 3 - BURNHAM ROAD RE-ROUTE - CULVERT TABLE

CULVERT No.	STATION	LENGTH (LF)	(BARRELS) SIZE	CORRUGATION (INCHES)	MINIMUM COVER	SLOPE (%)	INVERT IN (ELEV.)	INVERT OUT (ELEV.)	SKEW (DEG.)	END TREATMENT INLET OUTLET		OUTFLOW PROTECTION
4-1	12+40	78	(5) 48"	2-2/3 X 1/2	12"	0.5	5449.7	5449.3	0	CONCRETE BLANKET	CONCRETE BLANKET	RIPRAP
3-4	98+50	72	(1) 36"	2-2/3 X 1/2	12"	1.0	5465.8	5465.1	0	FES	FES	RIPRAP
3-3	127+10	75	(4) 72"	5 X 1	12"	1.0	5443.1	5442.3	0	CONCRETE BLANKET	CONCRETE BLANKET	RIPRAP
3-2	216+70	75	(1) 24"	2-2/3 X 1/2	12"	1.0	5457.7	5457.0	0	FES	FES	RIPRAP
3-1	233+75	65	(1) 24"	2-2/3 X 1/2	12"	0.5	5457.9	5457.6	0	FES	FES	RIPRAP

PHASE 4 - BURNHAM ROAD RE-ROUTE - CULVERT TABLE

CULVERT No.	STATION	LENGTH (LF)	SIZE (INCHES)	CORRUGATION (INCHES)	MINIMUM COVER (INCHES)	SLOPE (%)	INVERT IN (ELEV.)	INVERT OUT (ELEV.)	SKEW (DEG.)	END TREATMENT INLET OUTLET		OUTFLOW PROTECTION
4-5	46+75	76	(1) 30"	2-2/3 X 1/2	12"	1.0	5479.7	5478.9	0	FES	FES	RIPRAP
4-4	65+15	82	(1) 60"	5 X 1	12"	1.0	5486.7	5485.9	20	FES	FES	RIPRAP
4-3	189+00	95	(3) 42"	2-2/3 X 1/2	12"	1.0	5483.7	5482.7	0	MULTI-FES	MULTI-FES	RIPRAP
4-2	206+65	75	(3) 36"	2-2/3 X 1/2	12"	1.0	5476.6	5475.8	0	MULTI-FES	MULTI-FES	RIPRAP
4-1	233+70	82	(5) 48"	2-2/3 X 1/2	12"	1.0	5455.1	5454.2	20	CONCRETE BLANKET	CONCRETE BLANKET	RIPRAP

CULVERT NOTES:

- ALL CULVERTS SHALL BE GALVANIZED 16 GA. STEEL COROGATED METAL PIPE (CMP)
- ALL CULVERTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND NMDOT REQUIREMENTS.
- ALL CULVERTS SHALL HAVE THE SPECIFIED END TREATMENTS;
 - "FES" INDICATED FLARED END SECTION. PROVIDE FES MATCHING THE PIPE SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
 - "MULTI-FES" INDICATES MULTIPLE PIPE FLARED END SECTION. PROVIDE MULTI-FES MATCHING THE PIPE SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
 - "CONCRETE BLANKET" INDICATES CONCRETE BLANKET IN ACCORDANCE WITH NMDOT STD DWG 511-12-1 AND 2
- THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

BURNHAM ROAD RE-ROUTE

PHASE 3 & 4

***Pinabete Arroyo Baseline Hyrdology and Sedimentology
SEDCAD Model Output***

NTEC

Navajo Transitional Energy Company
Navajo Mine
New Mexico

General Information

Storm Information:

Storm Type:	Type II- 70
Design Storm:	10 yr - 6 hr
Rainfall Depth:	1.230 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#2	1.674	0.331	PBS1
Null	#2	==>	#5	4.188	0.295	PBS2
Null	#3	==>	#4	1.961	0.319	PBS3
Null	#4	==>	#5	3.103	0.304	PBS4
Null	#5	==>	#6	1.188	0.272	PBS5
Culvert	#6	==>	#12	0.995	0.281	PBS6 (Culvert 3-3)
Null	#7	==>	#6	0.045	0.319	PBS7
Culvert	#8	==>	#12	0.000	0.000	PBS8 (Culvert 3-2)
Culvert	#10	==>	#12	0.000	0.000	PBS9 (Culvert 3-1)
Culvert	#11	==>	#12	0.000	0.000	PBS10 (Culvert 3-4)
Null	#12	==>	End	0.000	0.000	Imaginary Point
Null	#13	==>	#14	0.000	0.000	NNS1
Culvert	#14	==>	#12	1.665	0.291	NNS2 (Culvert 4-1)
Culvert	#15	==>	#14	0.584	0.296	NNS3 (Culvert 4-2)
Culvert	#16	==>	#14	0.231	0.319	NNS4 (Culvert 4-3)
Culvert	#17	==>	#12	0.000	0.000	BHS1 (Culvert 4-4)
Culvert	#18	==>	#12	0.000	0.000	BHS2 (Culvert 4-5)

	#18 Culvert
	#17 Culvert
	#16 Culvert
	#15 Culvert
	#13 Null
	#14 Culvert
	#11 Culvert
	#10 Culvert
	#8 Culvert
	#7 Null

	#3 Null
	#4 Null
	#1 Null
	#2 Null
	#5 Null
	#6 Culvert
	#12 Null

Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	8. Large gullies, diversions, and low flowing streams	1.24	249.98	20,136.00	3.34	1.674
#1	Muskingum K:					1.674
#2	8. Large gullies, diversions, and low flowing streams	0.67	245.00	36,791.00	2.44	4.188
#2	Muskingum K:					4.188
#3	8. Large gullies, diversions, and low flowing streams	0.99	210.00	21,118.00	2.99	1.961
#3	Muskingum K:					1.961
#4	8. Large gullies, diversions, and low flowing streams	0.77	227.00	29,388.00	2.63	3.103
#4	Muskingum K:					3.103
#5	8. Large gullies, diversions, and low flowing streams	0.46	39.99	8,684.00	2.03	1.188
#5	Muskingum K:					1.188
#6	8. Large gullies, diversions, and low flowing streams	0.54	42.00	7,845.00	2.19	0.995
#6	Muskingum K:					0.995
#7	8. Large gullies, diversions, and low flowing streams	1.00	4.89	489.00	3.00	0.045
#7	Muskingum K:					0.045
#14	8. Large gullies, diversions, and low flowing streams	0.52	9.99	1,918.00	2.16	0.246
	8. Large gullies, diversions, and low flowing streams	0.67	35.00	5,228.00	2.45	0.592
	8. Large gullies, diversions, and low flowing streams	0.63	45.00	7,090.00	2.38	0.827

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#14	Muskingum K:					1.665
#15	8. Large gullies, diversions, and low flowing streams	0.52	9.99	1,918.00	2.16	0.246
	8. Large gullies, diversions, and low flowing streams	0.78	25.00	3,220.00	2.64	0.338
#15	Muskingum K:					0.584
#16	8. Large gullies, diversions, and low flowing streams	1.00	25.00	2,500.00	3.00	0.231
#16	Muskingum K:					0.231

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#18	158.400	158.400	26.11	2.49
#17	821.100	821.100	182.75	24.89
#16	873.900	873.900	154.03	20.72
#15	853.300	853.300	125.54	19.25
#13	999.400	999.400	91.65	13.42
#14	1,053.600	3,780.200	453.84	76.85
#11	268.600	268.600	51.08	4.14
#10	36.900	36.900	5.86	0.41
#8	231.700	231.700	6.36	1.51
#7	1,959.900	1,959.900	37.76	21.72
#3	3,978.700	3,978.700	222.25	43.66
#4	3,216.100	7,194.800	340.01	96.24
#1	8,477.900	8,477.900	700.14	125.93
#2	3,838.900	12,316.800	794.82	233.70
#5	5,494.300	25,005.900	1,040.51	486.93
#6	3,062.300	30,028.100	1,060.98	584.17
#12	0.000	35,325.000	1,060.06	694.46

Structure Detail:**Structure #18 (Culvert)*****BHS2 (Culvert 4-5)***

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
76.00	1.00	0.0240	3.25	0.00	0.70

Culvert Results:

Design Discharge = 26.11 cfs

Minimum pipe diameter: 1 - 30 inch pipe(s) required Use 1 - 30"

Structure #17 (Culvert)***BHS1 (Culvert 4-4)***

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
82.00	1.00	0.0240	7.25	0.00	0.70

Culvert Results:

Design Discharge = 182.75 cfs

Minimum pipe diameter: 1 - 60 inch pipe(s) required Use 1 - 60"

Structure #16 (Culvert)***NNS4 (Culvert 4-3)***

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
95.00	1.00	0.0240	4.00	0.00	0.70

Culvert Results:

Design Discharge = 154.03 cfs

Minimum pipe diameter: 1 - 120 inch pipe(s) required Use 3 - 42"

Structure #15 (Culvert)***NNS3 (Culvert 4-2)***

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
75.00	1.00	0.0240	4.00	0.00	0.70

Culvert Results:

Design Discharge = 125.54 cfs

Minimum pipe diameter: 1 - 84 inch pipe(s) required Use 3 - 36"

Structure #13 (Null)

NNS1

Structure #14 (Culvert)

NNS2 (Culvert 4-1)

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
82.00	1.00	0.0240	8.00	0.00	0.70

Culvert Results:

Design Discharge = 453.84 cfs

Minimum pipe diameter: 1 - 120 inch pipe(s) required Use 5 - 48"

Structure #11 (Culvert)

PBS10 (Culvert 3-4)

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
72.00	1.00	0.0240	4.75	0.00	0.70

Culvert Results:

Design Discharge = 51.08 cfs

Minimum pipe diameter: 1 - 36 inch pipe(s) required Use 1 - 36"

Structure #10 (Culvert)

PBS9 (Culvert 3-1)

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
65.00	0.50	0.0240	3.00	0.00	0.70

Culvert Results:

Design Discharge = 5.86 cfs

Minimum pipe diameter: 1 - 18 inch pipe(s) required Use 1 - 24"

Structure #8 (Culvert)

PBS8 (Culvert 3-2)

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
75.00	1.00	0.0240	3.00	0.00	0.70

Culvert Results:

Design Discharge = 6.36 cfs

Minimum pipe diameter: 1 - 18 inch pipe(s) required Use 1 - 24"

Structure #7 (Null)

PBS7

Structure #3 (Null)

PBS3

Structure #4 (Null)

PBS4

Structure #1 (Null)

PBS1

Structure #2 (Null)

PBS2

Structure #5 (Null)

PBS5

Structure #6 (Culvert)

PBS6 (Culvert 3-3)

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (K _e)
150.00	1.00	0.0240	15.00	0.00	0.70

Culvert Results:

Design Discharge = 1,060.98 cfs

Minimum pipe diameter: 1 - 120 inch pipe(s) required Use 4 - 72"

Structure #12 (Null)

Imaginary Point

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
76.00	1.00	0.0240	3.25	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 30 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 26.10 cfs

Maximum Headwater = 3.25 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (24 in)	Discharge (cfs) (30 in)	Discharge (cfs) (36 in)
0.32	3.66	5.46	7.29
0.65	4.60	7.08	9.76
0.97	5.44	8.52	11.98
1.30	6.18	9.82	14.00
1.63	7.93	11.01	15.86
1.95	10.69	12.90	17.57
2.28	13.31	16.78	19.49
2.60	14.64	20.75	24.36
2.93	16.01	24.51	29.64
3.25	17.27	26.74	34.95
3.58	18.45	28.95	39.97
3.90	19.55	31.00	43.57
4.23	20.60	32.93	46.81
4.55	21.59	34.76	49.83
4.88	22.54	36.48	52.69

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED
AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND
VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
82.00	1.00	0.0240	7.25	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 60 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 182.75 cfs

Maximum Headwater = 7.25 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (54 in)	Discharge (cfs) (60 in)	Discharge (cfs) (66 in)
0.73	19.86	22.75	25.47
1.45	30.96	36.57	42.15
2.18	40.57	48.74	57.11
2.90	49.03	59.51	70.46
3.63	58.38	69.21	82.52
4.35	80.18	86.89	93.56
5.07	102.69	112.86	121.67
5.80	125.73	139.42	152.12
6.52	141.10	167.08	182.92
7.25	154.95	186.54	214.40
7.97	167.67	203.48	236.86
8.70	179.48	219.11	257.36
9.43	190.56	233.70	276.33
10.15	201.04	247.43	294.09
10.88	210.99	260.43	310.84

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

CULVERT 4-3

TOTAL FLOW = 154.03 cfs
3 BARRELS AT 51.34 cfs EACH

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
95.00	1.00	0.0240	4.00	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 42 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 51.34 cfs

Maximum Headwater = 4.00 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (36 in)	Discharge (cfs) (42 in)	Discharge (cfs) (45 in)
0.40	8.98	11.53	12.79
0.80	11.57	15.24	17.12
1.20	13.87	18.57	21.04
1.60	15.95	21.59	24.60
2.00	17.86	24.36	27.87
2.40	21.22	26.93	30.90
2.80	27.60	31.08	33.76
3.20	34.10	39.16	41.31
3.60	39.82	47.48	50.43
4.00	43.69	55.67	59.74
4.40	47.19	62.63	68.79
4.80	50.45	67.69	76.48
5.20	53.51	72.41	82.23
5.60	56.41	76.84	87.60
6.00	59.16	81.03	92.67

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED
AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND
VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

CULVERT 4-2

TOTAL FLOW = 125.54 cfs
3 BARRELS AT 41.85 cfs EACH

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
75.00	1.00	0.0240	4.00	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 36 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 41.85 cfs

Maximum Headwater = 4.00 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (30 in)	Discharge (cfs) (36 in)	Discharge (cfs) (42 in)
0.40	5.81	7.82	9.77
0.80	7.74	10.77	13.92
1.20	9.42	13.37	17.64
1.60	10.92	15.71	20.99
2.00	13.48	17.83	24.06
2.40	18.31	21.21	26.89
2.80	23.12	27.60	31.05
3.20	26.41	34.15	39.13
3.60	29.16	40.30	47.48
4.00	31.67	44.65	55.78
4.40	34.00	48.53	63.57
4.80	36.18	52.13	69.17
5.20	38.23	55.50	74.35
5.60	40.18	58.68	79.19
6.00	42.03	61.68	83.75

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED
AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND
VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

CULVERT 4-1

TOTAL FLOW = 453.84 cfs

5 BARRELS AT 90.77 cfs EACH

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
82.00	1.00	0.0240	5.50	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 48 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 90.77 cfs

Maximum Headwater = 5.50 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (45 in)	Discharge (cfs) (48 in)	Discharge (cfs) (54 in)
0.55	13.25	14.52	16.94
1.10	19.27	21.45	25.81
1.65	24.53	27.54	33.75
2.20	29.19	32.98	40.88
2.75	33.42	37.90	47.36
3.30	43.54	45.67	53.32
3.85	56.24	59.44	65.08
4.40	68.88	73.64	81.72
4.95	79.57	88.46	98.82
5.50	87.64	98.19	118.80
6.05	95.03	107.04	131.25
6.60	101.87	115.21	142.59
7.15	108.29	122.84	153.11
7.70	114.35	130.02	162.96
8.25	120.10	136.81	172.24

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED
AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND
VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
72.00	1.00	0.0240	4.75	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 36 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 51.08 cfs

Maximum Headwater = 4.75 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (30 in)	Discharge (cfs) (36 in)	Discharge (cfs) (42 in)
0.47	6.09	8.22	10.30
0.95	8.34	11.67	15.16
1.42	10.26	14.65	19.44
1.90	12.40	17.30	23.26
2.38	18.00	20.81	26.72
2.85	23.70	28.41	32.06
3.32	27.41	36.17	41.72
3.80	30.61	42.70	51.67
4.27	33.50	47.56	61.85
4.75	36.17	51.97	68.74
5.22	38.66	56.04	75.00
5.70	40.99	59.84	80.78
6.17	43.19	63.40	86.16
6.65	45.29	66.78	91.23
7.12	47.30	69.99	96.04

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED
AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND
VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
65.00	0.50	0.0240	3.00	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 18 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 5.86 cfs

Maximum Headwater = 3.00 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (15 in)	Discharge (cfs) (18 in)	Discharge (cfs) (21 in)
0.30	0.92	1.31	1.70
0.60	1.30	1.89	2.54
0.90	1.82	2.43	3.26
1.20	2.81	3.46	4.08
1.50	3.29	4.83	5.77
1.80	3.87	5.62	7.57
2.10	4.39	6.35	8.61
2.40	4.85	7.12	9.61
2.70	5.27	7.83	10.71
3.00	5.65	8.47	11.71
3.30	6.02	9.07	12.63
3.60	6.36	9.63	13.49
3.90	6.69	10.16	14.30
4.20	7.00	10.67	15.06
4.50	7.30	11.15	15.78

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED AT
THIS TIME, BUT WILL NEED TO BE DESIGNED AND VERIFIED
BEFORE CONSTRUCTION PLANS ARE ISSUED.

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
75.00	1.00	0.0240	3.00	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 18 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 6.36 cfs

Maximum Headwater = 3.00 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (15 in)	Discharge (cfs) (18 in)	Discharge (cfs) (21 in)
0.30	1.36	2.01	2.76
0.60	1.62	2.44	3.40
0.90	2.07	2.86	3.96
1.20	3.15	3.75	4.57
1.50	3.95	5.34	6.20
1.80	4.34	6.47	8.25
2.10	4.76	7.05	9.65
2.40	5.14	7.70	10.61
2.70	5.50	8.29	11.53
3.00	5.84	8.84	12.38
3.30	6.15	9.36	13.18
3.60	6.45	9.86	13.93
3.90	6.75	10.33	14.64
4.20	7.02	10.78	15.32
4.50	7.29	11.21	15.96

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED
AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND
VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

CULVERT 3-3

TOTAL FLOW = 1060.98 cfs

4 BARRELS AT 265.25 cfs EACH

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max, Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
75.00	1.00	0.0240	8.00	0.00	0.70

Culvert Results:

Minimum pipe diameter: 1 - 72 inch pipe(s) required

Detailed Performance Curves

Design Discharge = 265.25 cfs

Maximum Headwater = 8.00 ft

(BOLD indicates design pipe size)

Headwater (ft)	Discharge (cfs) (66 in)	Discharge (cfs) (72 in)	Discharge (cfs) (84 in)
0.80	25.72	28.25	32.79
1.60	44.24	50.03	61.11
2.40	60.68	69.78	88.05
3.20	75.22	87.40	112.56
4.00	88.28	103.27	134.83
4.80	110.44	117.97	155.27
5.60	143.55	153.69	174.21
6.40	177.59	192.11	216.63
7.20	212.77	231.06	265.00
8.00	237.60	269.86	314.17
8.80	260.05	297.76	371.28
9.60	280.72	323.25	408.86
10.40	299.97	346.88	443.30
11.20	318.06	368.99	475.22
12.00	335.17	389.85	505.14

THE RIPRAP OUTLET PROTECTION HAS NOT BEEN DESIGNED
AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND
VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#18	1	158.400	0.711	0.000	0.000	83.100	M	26.11	2.494
	Σ	158.400						26.11	2.494
#17	1	731.100	1.267	0.000	0.000	90.100	M	171.68	23.473
	2	90.000	0.766	0.000	0.000	83.100	M	14.11	1.418
	Σ	821.100						182.75	24.890
#16	1	873.900	1.206	0.000	0.000	87.000	M	154.03	20.722
	Σ	873.900						154.03	20.722
#15	1	517.100	0.960	0.000	0.000	87.000	M	108.10	12.262
	2	336.200	1.482	0.328	0.268	85.700	M	43.83	6.984
	Σ	853.300						125.54	19.247
#13	1	999.400	1.263	0.000	0.000	81.700	M	91.65	13.419
	Σ	999.400						91.65	13.419
#14	1	124.500	0.801	0.000	0.000	87.000	M	29.63	2.953
	2	408.900	0.836	0.246	0.280	87.000	M	94.41	9.705
	3	520.200	1.134	0.838	0.291	85.700	M	83.21	10.808
	Σ	3,780.200						453.84	76.854
#11	1	268.600	0.559	0.000	0.000	82.900	M	51.08	4.138
	Σ	268.600						51.08	4.138
#10	1	36.900	0.409	0.000	0.000	80.000	M	5.86	0.405
	Σ	36.900						5.86	0.405
#8	1	231.700	2.139	0.000	0.000	76.200	M	6.36	1.510
	Σ	231.700						6.36	1.510
#7	1	421.700	6.244	0.000	0.000	82.900	M	12.20	6.488
	2	1,386.200	6.760	0.272	0.319	79.500	M	24.69	14.243
	3	152.000	2.457	0.566	0.319	76.200	M	3.77	0.991
	Σ	1,959.900						37.76	21.722
#3	1	791.300	1.144	1.181	0.350	80.800	M	69.46	9.552
	2	1,079.100	0.919	0.596	0.351	80.800	M	111.14	13.030
	3	450.300	0.571	0.319	0.355	81.300	M	68.68	5.777
	4	742.600	1.122	0.000	0.000	78.500	M	47.56	6.701
	5	915.400	0.725	0.000	0.000	78.800	M	83.50	8.603
	Σ	3,978.700						222.25	43.663

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#4	1	546.400	0.725	1.710	0.319	81.700	M	74.69	7.341
	2	441.200	0.814	1.429	0.318	86.000	M	92.99	9.458
	3	889.400	0.919	0.998	0.318	82.100	M	108.55	12.510
	4	1,339.100	0.919	0.000	0.000	84.000	M	205.88	23.265
	Σ	7,194.800						340.01	96.237
#1	1	1,242.300	1.344	1.345	0.354	80.800	M	96.56	14.994
	2	1,662.000	0.217	0.849	0.360	80.300	M	397.68	18.994
	3	1,434.000	1.575	1.241	0.357	81.100	M	102.69	17.939
	4	842.700	1.100	0.977	0.364	81.000	M	78.22	10.419
	5	676.100	1.067	1.113	0.365	81.600	M	69.45	8.974
	6	1,223.200	0.777	0.596	0.352	81.800	M	161.50	16.624
	7	743.100	0.745	0.530	0.354	83.600	M	126.09	12.363
	8	654.500	0.800	0.000	0.000	92.200	M	264.65	25.626
	Σ	8,477.900						700.14	125.934
#2	1	609.500	0.669	1.219	0.340	85.700	M	142.61	12.680
	2	537.100	0.609	1.436	0.329	91.600	M	246.19	19.898
	3	455.000	0.547	1.288	0.324	82.000	M	78.27	6.329
	4	627.000	0.634	0.852	0.324	87.900	M	193.07	16.268
	5	653.100	0.451	0.453	0.315	91.200	M	346.05	23.299
	6	957.200	0.984	0.000	0.000	89.600	M	258.34	29.295
	Σ	12,316.800						794.82	233.704
#5	1	763.100	0.681	3.507	0.293	84.100	M	146.54	13.406
	2	983.300	1.118	2.231	0.289	89.200	M	231.69	28.949
	3	1,022.000	0.997	1.587	0.291	92.000	M	347.29	39.281
	4	688.700	1.905	1.255	0.291	80.800	M	40.88	8.311
	5	754.300	2.303	1.084	0.287	86.200	M	72.99	16.493
	6	628.400	0.540	0.595	0.301	93.000	M	356.35	26.534
	7	654.500	0.562	0.000	0.000	91.500	M	312.82	24.014
	Σ	25,005.900						1,040.51	486.930
#6	1	901.400	1.150	1.896	0.315	81.100	M	82.03	11.279
	2	1,011.200	1.864	0.166	0.287	83.500	M	85.56	16.628
	3	1,149.700	1.178	0.000	0.000	92.800	M	373.34	47.614
	Σ	30,028.100						1,060.98	584.173
#12	Σ	35,325.000						1,060.06	694.465

Subwatershed Time of Concentration Details:

SEDCAD 4 for Windows

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Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	5. Nearly bare and untilled, and alluvial valley fans	2.99	22.00	736.00	1.720	0.118
		8. Large gullies, diversions, and low flowing streams	0.63	66.21	10,511.00	2.380	1.226
#1	1	Time of Concentration:					1.344
#1	2	8. Large gullies, diversions, and low flowing streams	1.48	241.99	16,353.00	3.640	1.247
		5. Nearly bare and untilled, and alluvial valley fans	1.02	8.00	785.00	1.000	0.218
#1	2	Time of Concentration:					0.217
#1	3	5. Nearly bare and untilled, and alluvial valley fans	0.88	10.00	1,136.10	0.930	0.339
		8. Large gullies, diversions, and low flowing streams	1.31	200.00	15,244.00	3.430	1.234
#1	3	Time of Concentration:					1.575
#1	4	5. Nearly bare and untilled, and alluvial valley fans	1.85	10.00	542.00	1.350	0.111
		8. Large gullies, diversions, and low flowing streams	1.62	220.00	13,595.00	3.810	0.991
#1	4	Time of Concentration:					1.100
#1	5	5. Nearly bare and untilled, and alluvial valley fans	1.23	10.00	812.00	1.100	0.205
		8. Large gullies, diversions, and low flowing streams	1.41	156.00	11,049.00	3.560	0.862
#1	5	Time of Concentration:					1.067
#1	6	5. Nearly bare and untilled, and alluvial valley fans	3.12	22.00	706.00	1.760	0.111
		8. Large gullies, diversions, and low flowing streams	2.85	346.00	12,152.00	5.060	0.667
#1	6	Time of Concentration:					0.777
#1	7	5. Nearly bare and untilled, and alluvial valley fans	4.66	43.00	922.01	2.150	0.119
		8. Large gullies, diversions, and low flowing streams	2.67	295.00	11,057.38	4.900	0.626
#1	7	Time of Concentration:					0.745
#1	8	5. Nearly bare and untilled, and alluvial valley fans	7.46	65.00	871.00	2.730	0.088
		8. Large gullies, diversions, and low flowing streams	2.61	324.00	12,433.00	4.840	0.713
#1	8	Time of Concentration:					0.800
#2	1	5. Nearly bare and untilled, and alluvial valley fans	6.24	29.99	481.00	2.490	0.053
		8. Large gullies, diversions, and low flowing streams	3.34	405.99	12,141.00	5.480	0.615
#2	1	Time of Concentration:					0.669
#2	2	5. Nearly bare and untilled, and alluvial valley fans	3.16	30.00	950.00	1.770	0.149
		8. Large gullies, diversions, and low flowing streams	4.22	432.00	10,229.00	6.160	0.461

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Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#2	2	Time of Concentration:					0.609
#2	3	5. Nearly bare and untilled, and alluvial valley fans	2.65	10.00	378.00	1.620	0.064
		8. Large gullies, diversions, and low flowing streams	2.72	234.00	8,592.00	4.950	0.482
#2	3	Time of Concentration:					0.547
#2	4	5. Nearly bare and untilled, and alluvial valley fans	3.07	25.00	815.00	1.750	0.129
		8. Large gullies, diversions, and low flowing streams	3.32	330.00	9,931.00	5.460	0.505
#2	4	Time of Concentration:					0.634
#2	5	5. Nearly bare and untilled, and alluvial valley fans	7.45	45.00	604.00	2.720	0.061
		8. Large gullies, diversions, and low flowing streams	3.78	310.00	8,210.00	5.820	0.391
#2	5	Time of Concentration:					0.451
#2	6	5. Nearly bare and untilled, and alluvial valley fans	9.10	80.00	879.00	3.010	0.081
		8. Large gullies, diversions, and low flowing streams	2.32	344.00	14,831.00	4.560	0.903
#2	6	Time of Concentration:					0.984
#3	1	5. Nearly bare and untilled, and alluvial valley fans	1.29	15.00	1,163.00	1.130	0.285
		8. Large gullies, diversions, and low flowing streams	2.37	338.00	14,280.00	4.610	0.860
#3	1	Time of Concentration:					1.144
#3	2	5. Nearly bare and untilled, and alluvial valley fans	3.04	33.00	1,087.00	1.740	0.173
		8. Large gullies, diversions, and low flowing streams	2.06	238.00	11,527.00	4.310	0.742
#3	2	Time of Concentration:					0.919
#3	3	5. Nearly bare and untilled, and alluvial valley fans	5.02	45.00	897.00	2.230	0.111
		8. Large gullies, diversions, and low flowing streams	3.09	270.00	8,741.00	5.270	0.460
#3	3	Time of Concentration:					0.571
#3	4	5. Nearly bare and untilled, and alluvial valley fans	7.41	28.00	378.00	2.720	0.038
		8. Large gullies, diversions, and low flowing streams	3.43	402.00	11,736.00	5.550	0.587
#3	4	Time of Concentration:					1.122
#3	5	5. Nearly bare and untilled, and alluvial valley fans	3.39	30.00	885.00	1.840	0.133
		8. Large gullies, diversions, and low flowing streams	2.58	442.00	17,121.00	4.820	0.986
#3	5	Time of Concentration:					0.725
#4	1	5. Nearly bare and untilled, and alluvial valley fans	6.83	24.99	366.00	2.610	0.038

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Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
		8. Large gullies, diversions, and low flowing streams	2.36	181.99	7,708.00	4.600	0.465
#4	1	Time of Concentration:					0.725
#4	2	5. Nearly bare and untilled, and alluvial valley fans	6.83	25.00	366.00	2.610	0.038
		8. Large gullies, diversions, and low flowing streams	2.36	182.00	7,708.00	4.600	0.465
#4	2	Time of Concentration:					0.814
#4	3	5. Nearly bare and untilled, and alluvial valley fans	19.03	47.00	247.00	4.360	0.015
		8. Large gullies, diversions, and low flowing streams	2.13	268.00	12,586.00	4.370	0.800
#4	3	Time of Concentration:					0.919
#4	4	5. Nearly bare and untilled, and alluvial valley fans	14.08	50.00	355.00	3.750	0.026
		8. Large gullies, diversions, and low flowing streams	2.46	372.00	15,119.00	4.700	0.893
#4	4	Time of Concentration:					0.919
#5	1	5. Nearly bare and untilled, and alluvial valley fans	12.55	64.99	518.00	3.540	0.040
		8. Large gullies, diversions, and low flowing streams	1.92	183.99	9,592.00	4.150	0.642
#5	1	Time of Concentration:					0.681
#5	2	5. Nearly bare and untilled, and alluvial valley fans	5.10	30.00	588.00	2.250	0.072
		8. Large gullies, diversions, and low flowing streams	1.77	266.00	15,016.00	3.990	1.045
#5	2	Time of Concentration:					1.118
#5	3	5. Nearly bare and untilled, and alluvial valley fans	1.90	20.00	1,050.00	1.380	0.211
		8. Large gullies, diversions, and low flowing streams	2.19	274.00	12,532.00	4.430	0.785
#5	3	Time of Concentration:					0.997
#5	4	5. Nearly bare and untilled, and alluvial valley fans	2.78	32.00	1,152.00	1.660	0.192
		8. Large gullies, diversions, and low flowing streams	0.99	182.00	18,415.00	2.980	1.716
#5	4	Time of Concentration:					1.905
#5	5	5. Nearly bare and untilled, and alluvial valley fans	2.52	23.00	911.00	1.580	0.160
		8. Large gullies, diversions, and low flowing streams	1.07	256.00	23,965.00	3.100	2.147
#5	5	Time of Concentration:					2.303
#5	6	5. Nearly bare and untilled, and alluvial valley fans	6.36	25.00	393.00	2.520	0.043
		8. Large gullies, diversions, and low flowing streams	2.39	198.00	8,272.00	4.640	0.495
#5	6	Time of Concentration:					0.540

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Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#5	7	5. Nearly bare and untilled, and alluvial valley fans	9.66	28.00	290.00	3.100	0.025
		8. Large gullies, diversions, and low flowing streams	2.12	179.00	8,427.00	4.370	0.535
#5	7	Time of Concentration:					0.562
#6	1	5. Nearly bare and untilled, and alluvial valley fans	31.83	120.00	377.00	5.640	0.018
		8. Large gullies, diversions, and low flowing streams	1.38	198.00	14,361.00	3.520	1.133
#6	1	Time of Concentration:					1.150
#6	2	5. Nearly bare and untilled, and alluvial valley fans	4.25	40.00	941.00	2.060	0.126
		8. Large gullies, diversions, and low flowing streams	0.96	176.00	18,407.00	2.930	1.745
#6	2	Time of Concentration:					1.864
#6	3	5. Nearly bare and untilled, and alluvial valley fans	3.51	40.00	1,140.00	1.870	0.169
		8. Large gullies, diversions, and low flowing streams	1.54	200.00	12,958.00	3.720	0.967
#6	3	Time of Concentration:					1.178
#7	1	5. Nearly bare and untilled, and alluvial valley fans	0.60	99.99	16,800.00	0.770	6.060
		8. Large gullies, diversions, and low flowing streams	1.00	19.94	1,995.00	3.000	0.184
#7	1	Time of Concentration:					6.244
#7	2	5. Nearly bare and untilled, and alluvial valley fans	0.57	99.99	17,630.00	0.750	6.529
		8. Large gullies, diversions, and low flowing streams	1.00	25.00	2,500.00	3.000	0.231
#7	2	Time of Concentration:					6.760
#7	3	5. Nearly bare and untilled, and alluvial valley fans	0.49	29.99	6,069.00	0.700	2.408
		8. Large gullies, diversions, and low flowing streams	1.00	5.30	530.00	3.000	0.049
#7	3	Time of Concentration:					2.457
#8	1	5. Nearly bare and untilled, and alluvial valley fans	0.75	50.00	6,625.00	0.860	2.139
#8	1	Time of Concentration:					2.139
#10	1	8. Large gullies, diversions, and low flowing streams	0.84	10.00	1,190.00	2.750	0.120
		5. Nearly bare and untilled, and alluvial valley fans	0.98	10.00	1,023.00	0.980	0.289
#10	1	Time of Concentration:					0.409
#11	1	8. Large gullies, diversions, and low flowing streams	0.98	34.99	3,563.00	2.970	0.333
		5. Nearly bare and untilled, and alluvial valley fans	2.89	40.00	1,384.00	1.700	0.226
#11	1	Time of Concentration:					0.559

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Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#13	1	5. Nearly bare and untilled, and alluvial valley fans	1.30	8.98	692.00	1.130	0.170
		8. Large gullies, diversions, and low flowing streams	1.35	185.98	13,736.00	3.490	1.093
#13	1	Time of Concentration:					1.263
#14	1	5. Nearly bare and untilled, and alluvial valley fans	2.10	69.99	3,340.00	1.440	0.644
		8. Large gullies, diversions, and low flowing streams	0.70	10.00	1,420.00	2.510	0.157
#14	1	Time of Concentration:					0.801
#14	2	5. Nearly bare and untilled, and alluvial valley fans	1.94	39.99	2,060.00	1.390	0.411
		8. Large gullies, diversions, and low flowing streams	0.75	30.00	3,981.00	2.600	0.425
#14	2	Time of Concentration:					0.836
#14	3	5. Nearly bare and untilled, and alluvial valley fans	1.00	15.00	1,500.00	1.000	0.416
		8. Large gullies, diversions, and low flowing streams	0.64	40.00	6,211.00	2.400	0.718
#14	3	Time of Concentration:					1.134
#15	1	5. Nearly bare and untilled, and alluvial valley fans	0.82	10.00	1,213.00	0.900	0.374
		8. Large gullies, diversions, and low flowing streams	0.86	49.99	5,844.00	2.770	0.586
#15	1	Time of Concentration:					0.960
#15	2	5. Nearly bare and untilled, and alluvial valley fans	0.65	9.99	1,533.00	0.800	0.532
		8. Large gullies, diversions, and low flowing streams	0.44	30.00	6,811.00	1.990	0.950
#15	2	Time of Concentration:					1.482
#16	1	5. Nearly bare and untilled, and alluvial valley fans	1.12	29.99	2,678.00	1.050	0.708
		8. Large gullies, diversions, and low flowing streams	1.41	89.99	6,386.00	3.560	0.498
#16	1	Time of Concentration:					1.206
#17	1	5. Nearly bare and untilled, and alluvial valley fans	2.18	24.99	1,147.00	1.470	0.216
		8. Large gullies, diversions, and low flowing streams	0.94	103.00	10,979.00	2.900	1.051
#17	1	Time of Concentration:					1.267
#17	2	5. Nearly bare and untilled, and alluvial valley fans	1.04	14.99	1,441.00	1.020	0.392
		8. Large gullies, diversions, and low flowing streams	0.63	20.00	3,193.00	2.370	0.374
#17	2	Time of Concentration:					0.766
#18	1	5. Nearly bare and untilled, and alluvial valley fans	1.23	29.99	2,440.00	1.100	0.616
		8. Large gullies, diversions, and low flowing streams	2.27	35.00	1,545.00	4.510	0.095

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#18	1	Time of Concentration:					0.711

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#2	1	8. Large gullies, diversions, and low flowing streams	1.44	228.00	15,800.00	3.600	1.219
#2	1	Muskingum K:					1.219
#2	2	8. Large gullies, diversions, and low flowing streams	1.19	201.99	16,912.00	3.270	1.436
#2	2	Muskingum K:					1.436
#2	3	8. Large gullies, diversions, and low flowing streams	1.10	159.98	14,568.00	3.140	1.288
#2	3	Muskingum K:					1.288
#2	4	8. Large gullies, diversions, and low flowing streams	1.09	103.99	9,576.00	3.120	0.852
#2	4	Muskingum K:					0.852
#2	5	8. Large gullies, diversions, and low flowing streams	0.93	43.99	4,715.00	2.890	0.453
#2	5	Muskingum K:					0.453
#3	1	8. Large gullies, diversions, and low flowing streams	1.75	293.99	16,845.00	3.960	1.181
#3	1	Muskingum K:					1.181
#3	2	8. Large gullies, diversions, and low flowing streams	1.79	153.99	8,609.00	4.010	0.596
#3	2	Muskingum K:					0.596
#3	3	8. Large gullies, diversions, and low flowing streams	1.93	91.99	4,778.00	4.160	0.319
#3	3	Muskingum K:					0.319
#3	4	8. Large gullies, diversions, and low flowing streams	0.00	0.00	0.00	0.000	0.000
#3	4	Muskingum K:					0.000
#4	1	8. Large gullies, diversions, and low flowing streams	1.01	186.00	18,477.00	3.000	1.710
#4	1	Muskingum K:					1.710
#4	2	8. Large gullies, diversions, and low flowing streams	0.98	150.00	15,281.00	2.970	1.429
#4	2	Muskingum K:					1.429
#4	3	8. Large gullies, diversions, and low flowing streams	0.98	103.99	10,645.00	2.960	0.998
#4	3	Muskingum K:					0.998
#5	1	8. Large gullies, diversions, and low flowing streams	0.64	194.97	30,309.00	2.400	3.507
#5	1	Muskingum K:					3.507
#5	2	8. Large gullies, diversions, and low flowing streams	0.60	113.00	18,717.00	2.330	2.231

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#5	2	Muskingum K:					2.231
#5	3	8. Large gullies, diversions, and low flowing streams	0.63	84.98	13,541.00	2.370	1.587
#5	3	Muskingum K:					1.587
#5	4	8. Large gullies, diversions, and low flowing streams	0.63	66.99	10,710.00	2.370	1.255
#5	4	Muskingum K:					1.255
#5	5	8. Large gullies, diversions, and low flowing streams	0.59	52.99	8,978.00	2.300	1.084
#5	5	Muskingum K:					1.084
#5	6	8. Large gullies, diversions, and low flowing streams	0.74	40.99	5,528.00	2.580	0.595
#5	6	Muskingum K:					0.595
#6	1	8. Large gullies, diversions, and low flowing streams	0.94	185.99	19,797.00	2.900	1.896
#6	1	Muskingum K:					1.896
#6	2	8. Large gullies, diversions, and low flowing streams	0.58	7.99	1,372.00	2.290	0.166
#6	2	Muskingum K:					0.166
#7	2	8. Large gullies, diversions, and low flowing streams	1.00	29.40	2,940.00	3.000	0.272
#7	2	Muskingum K:					0.272
#7	3	8. Large gullies, diversions, and low flowing streams	1.00	61.19	6,120.00	3.000	0.566
#7	3	Muskingum K:					0.566
#14	2	8. Large gullies, diversions, and low flowing streams	0.52	10.00	1,918.00	2.160	0.246
#14	2	Muskingum K:					0.246
#14	3	8. Large gullies, diversions, and low flowing streams	0.67	34.99	5,228.00	2.450	0.592
		8. Large gullies, diversions, and low flowing streams	0.52	9.99	1,918.00	2.160	0.246
#14	3	Muskingum K:					0.838
#15	2	8. Large gullies, diversions, and low flowing streams	0.43	10.00	2,321.00	1.960	0.328
#15	2	Muskingum K:					0.328



Legend

- Diversion Centerline
- Diversion Limits
- Arroyos
- Stream Buffer Zone
- No Name Permit
- NTEC Lease Boundary

CERTIFICATION STATEMENT

I, Shaun T. Smith, hereby certify that this drawing was prepared by me and that the information shown is complete and accurate to the best of my knowledge.

Digitally signed by Shaun Smith
Reason: I have reviewed this document
Location:
Date: 2028.03.31 15:45:55-08'00'

Notes:
- Detailed design plans for the Pinabete Arroyo Diversion are presented in Section 26.

0
N

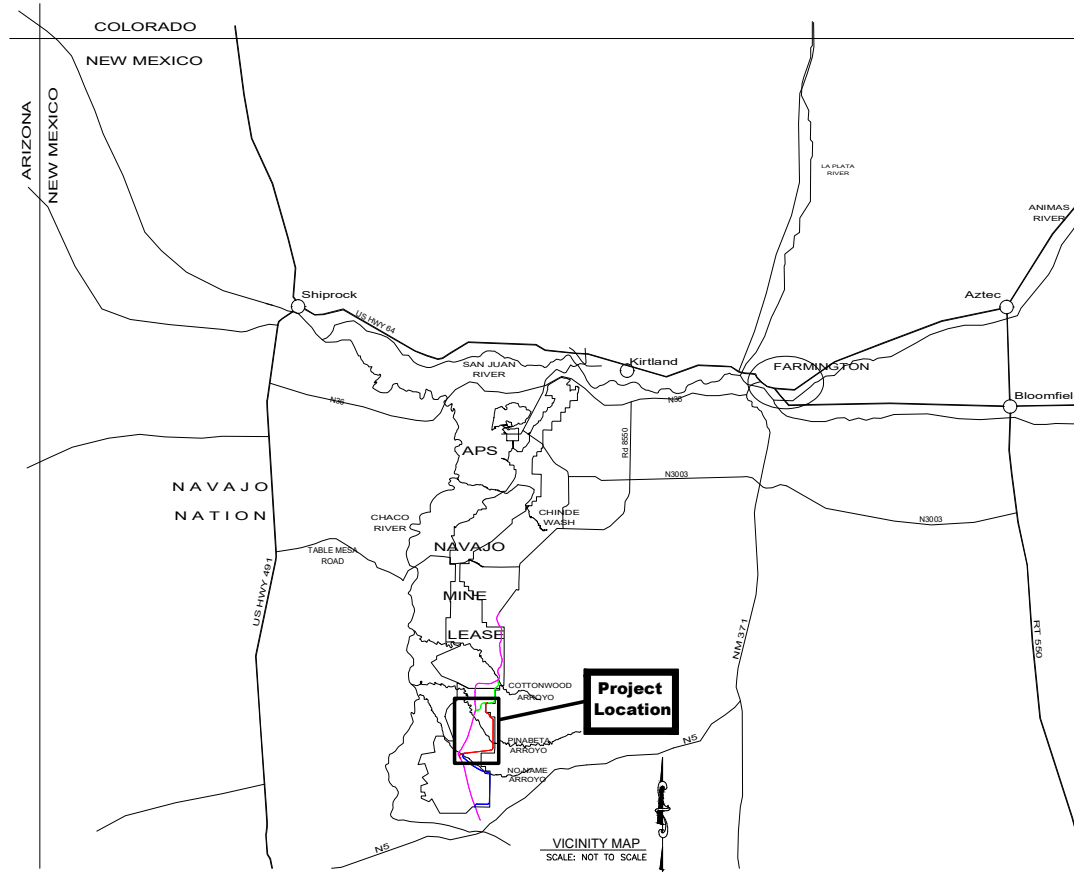
REVISION DESCRIPTIONS	
NO.	DATE

Exhibit 40.4-1

No Name Permit
Stream Buffer Zone

PREPARED BY: SS	DRAWN BY: SS	PAPER SIZE: ARCH D
APPROVED BY: SS	DATE: 08/22/25	

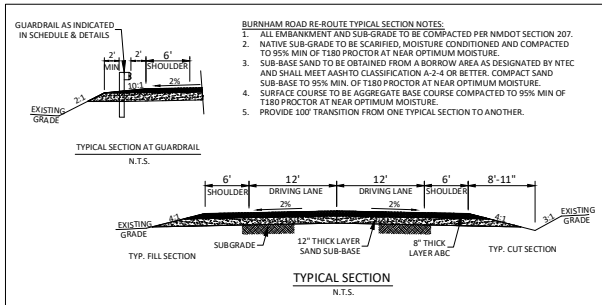
PHASE 3 - BURNHAM ROAD RE-ROUTE
BIA N5082
NAVAJO TRANSITIONAL ENERGY COMPANY (NTEC)
EXHIBIT 40.6-1



DESIGN PARAMETERS

ADT	1,200 vpd
DESIGN SPEED LIMIT	40 mph
POSTED SPEED LIMIT	35 mph
MIN. STOPPING DISTANCE	305 ft
MAX. GRADIENT	6%
MAX. SUPER ELEVATION	6%
MIN. HORIZONTAL CURVE RADIUS	575 ft
MIN. VERTICAL CURVE "K"	44 (CREST) 64 (SAG)

PROJECT LENGTH		
ROAD	LENGTH, ft	LENGTH, miles
PHASE 3 - BURNHAM ROAD RE-ROUTE BEGINNING STATION: 0+00 ENDING STATION: 259+10	25,910	4.91
PHASE 4 - BURNHAM ROAD RE-ROUTE BEGINNING STATION: 0+00 ENDING STATION: 246+34	24,634	4.66



GENERAL NOTES

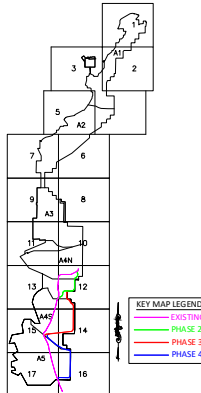
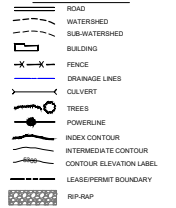
1. THE CONTOURS, PERMIT/LEASE LINES AND OTHER FEATURES HAVE BEEN PROVIDED BY NTEC FOR USE IN THE DEVELOPMENT OF THIS DESIGN.
2. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE NEW MEXICO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND THE PROJECT SUPPLEMENTAL SPECIFICATIONS.
3. ALL PERMANENT AND TEMPORARY ROADSIDE SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS AND IN ACCORDANCE WITH THE DETAILS ON THESE PLANS.
4. THE DESIGN FEATURE SUCH AS ALIGNMENT, CULVERT SIZE OR ROAD WIDTH WILL NOT BE ALTERED OR MODIFIED WITHOUT PRIOR APPROVAL. ROAD ELEVATION MAY BE UPDATED DURING CONSTRUCTION WHICH WILL BE UPDATED IN THE AS-BUILT.
5. NO WORK SHALL BE PERFORMED OUTSIDE OF THE DESIGNATED DISTURBANCE LIMITS WITHOUT APPROVAL.
6. REMOVE TOPSOIL FROM AREAS TO BE IDENTIFIED BY NTEC, AND HAIL TO THE TOPSOIL STOCKPILE SPECIFIED BY NTEC. TOPSOIL STRIPPING IS TO BE COORDINATED WITH NTEC'S SO. SPECIALIST WHO WILL BE ON SITE TO ENSURE THAT ONLY MATERIAL MEETING TOPSOIL SPECIFICATION IS EXCAVATED.
7. ALL ROADSIDE DITCHES AND DRAINAGE STRUCTURES SHALL BE STAIRED AND GRADED TO DRAIN UP TO THE CONSTRUCTION LIMITS. EARTHEN DITCH BLOCKS, DIKES AND DITCHES MAY BE ADDED AT LOCATIONS DESIGNATED BY THE OWNER AND/OR AS SHOWN ON THESE PLANS. AT ALL CULVERT INLETS AND OUTLETS, DRAINAGE SHALL BE GRADED AS NECESSARY TO HELP PRODUCE SMOOTH FLOW/CONNECTIONS BETWEEN CULVERTS AND EXISTING WASHES/CHANNELS.
8. IMMEDIATELY PRIOR TO PLACING THE SURFACE COURSE, THE TOP 8 INCHES OF FINISHED SUBGRADE (INCLUDING TURNOUTS) SHALL BE CHECKED FOR COMPACTION AND GRADE. IF COMPACTION DOES NOT MEET THE MINIMUM SPECIFIED COMPACTION REQUIREMENTS, THE SUBGRADE SHALL BE MOISTURE CONDITIONED AND/OR SCARIFIED AS NEEDED AND RE-COMPACTED TO THE REQUIRED DENSITY. IN NO CASE SHALL ANY EMBANKMENT OR SURFACING MATERIAL BE PLACED ON FROZEN, MUDDY OR UNSTABLE NATURAL GROUND. THIS WORK SHALL BE CONSIDERED INCIDENTAL OBLIGATIONS OF THE CONTRACTOR.
9. THE LOCATIONS OF UTILITIES SHOWN IN THESE PLANS IS APPROXIMATE AND IS PROVIDED ONLY TO ASSIST THE CONTRACTOR IN COMPLETING THE WORK. THE CONTRACTOR SHALL VERIFY ALL UTILITIES AND THEIR LOCATIONS WITH THE UTILITY OWNERS PRIOR TO CONSTRUCTION. ANY UTILITIES DAMAGED DUE TO NEGLIGENCE OF THE CONTRACTOR SHALL BE RESTORED TO THE UTILITY OWNER'S REQUIREMENTS AT THE CONTRACTOR'S EXPENSE.
10. ANY EXISTING OR NEW ROADSIDE FEATURES OR OTHER IMPROVEMENTS NEGLIGENTLY DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
11. GRADE AND SHAPE THE NEW SHOULDER (AS REQUIRED) FROM THE SUBGRADE HINGE POINTS TO AND INCLUDING THE EXISTING DITCH LINE FOR THE CONSTRUCTION OF DITCH LINING AREAS, SLOPE PROTECTION, AND RIPRAP RUNDOWNS.

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
3-01	PHASE 3 COVER SHEET
3-02	PHASE 3 OVER-ALL PLAN W/ NOTES, TABLE & DETAILS
3-03	PHASE 3 PLAN AND PROFILE: STA 0+00 TO 28+00
3-04	PHASE 3 PLAN AND PROFILE: STA 28+00 TO 54+00
3-05	PHASE 3 PLAN AND PROFILE: STA 54+00 TO 81+00
3-06	PHASE 3 PLAN AND PROFILE: STA 81+00 TO 108+00
3-07	PHASE 3 PLAN AND PROFILE: STA 108+00 TO 135+00
3-08	PHASE 3 PLAN AND PROFILE: STA 135+00 TO 163+00
3-09	PHASE 3 PLAN AND PROFILE: STA 163+00 TO 190+00
3-10	PHASE 3 PLAN AND PROFILE: STA 190+00 TO 217+00
3-11	PHASE 3 PLAN AND PROFILE: STA 217+00 TO 240+00
3-12	PHASE 3 PLAN AND PROFILE: STA 240+00 TO 259+10
3-13	PHASE 3 MONUMENT, CULVERT & RIPRAP DETAILS
4-01	PHASE 4 COVER SHEET
4-02	PHASE 4 OVER-ALL PLAN W/ NOTES, TABLE & DETAILS
4-03	PHASE 4 PLAN AND PROFILE: STA 0+00 TO 27+00
4-04	PHASE 4 PLAN AND PROFILE: STA 27+00 TO 54+00
4-05	PHASE 4 PLAN AND PROFILE: STA 54+00 TO 82+00
4-06	PHASE 4 PLAN AND PROFILE: STA 82+00 TO 130+00
4-07	PHASE 4 PLAN AND PROFILE: STA 130+00 TO 137+00
4-08	PHASE 4 PLAN AND PROFILE: STA 137+00 TO 164+00
4-09	PHASE 4 PLAN AND PROFILE: STA 164+00 TO 192+00
4-10	PHASE 4 PLAN AND PROFILE: STA 192+00 TO 220+00
4-11	PHASE 4 PLAN AND PROFILE: STA 220+00 TO 246+34
4-12	PHASE 4 MONUMENT, CULVERT & RIPRAP DETAILS



LEGEND



BURNHAM ROAD KEY MAP

ADDITIONAL MINE STRUCTURES INCLUDING, ROADS, RAILROADS, PONDS, IMPOUNDMENTS AND CULVERTS, ALTHOUGH PRESENT ON THIS EXHIBIT AS PART OF BASE MAPPING, ARE NOT INTENDED TO BE CURRENT OR ACCURATE AT THIS TIME. PLEASE REFER TO THE APPROPRIATE P.A.P. TEXT SECTION FOR A MINE STRUCTURE EXHIBIT REFERENCE.

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Digitally signed by Shawn Smith
Reason: I have reviewed this document
Location:
Date: 2025.03.31 15:49:48-0700

DATE	DATE	DATE	DATE

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EXHIBIT 40.6-1
SHEET 1 OF 25

Navajo Transitional Energy Company
Navajo Mine
PHASE 3
BURNHAM ROAD RE-ROUTE
COVER SHEET W/ VICINITY MAP & SHEET INDEX

Prepared By: PAR Drawn By: PAR Scale: As Noted
Reviewed By: PAR Date: 2025-09-23 PLO Date: 9/22/25
EXHIBIT PROJECT: 254-5476 SHEET: 3-01
Drawing: 2025-09-23 BURNHAM ROAD RE-ROUTE.dwg

PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION

PHASE 3 - BURNHAM ROAD RE-ROUTE OBJECT MARKER TABLE		
STATION	LOCATION	QUANTITY
12+40	RT & LT	2
98+50	RT & LT	2
127+10	RT & LT	2
216+70	RT & LT	2
233+75	RT & LT	2

OBJECT MARKER NOTES:
-TYPE 2 A/A3 OBJECT MARKERS SHALL BE PLACED ON THE SIDE OF THE ROAD JUST BEFORE ALL CULVERTS AND OTHER OBSTACLES ADJACENT TO THE ROADWAY.
-OBJECT MARKERS AND THEIR PLACEMENT SHALL COMPLY WITH NMDOT STD. DWG. 703-01, SHEETS 1 - 3.
-THE STATIONS GIVEN ON THIS TABLE ARE APPROX. AND SHALL BE MODIFIED AS NEEDED TO FIT THE SITE CONDITIONS.

PHASE 3 - BURNHAM ROAD RE-ROUTE - SIGN TABLE						
STA.	SIDE / DIRECTION	SIZE (IN)	SIGN CODE	SIGN AREA (SF)	POST LENGTH (FT)	POST BASE (FT)
0+00	RT / NBL	36 x 36	W1-2R (CURVE RIGHT)	9	13.5	3.5
2+00	RT / NBL	36 x 36	W11-4 (CATTLE CROSSING)	9	13.5	3.5
18+00	LT / SBL	36 x 36	W1-2L (CURVE LEFT)	9	13.5	3.5
18+50	RT / NBL	24 x 30	R2-1-35 (35 MPH)	5	12	3.5
100+00	RT / NBL	36 x 36	W1-2L (CURVE LEFT)	9	13.5	3.5
114+00	LT / SBL	36 x 36	W1-2R (CURVE RIGHT)	9	13.5	3.5
192+00	RT / NBL	36 x 36	W1-5L (WINDING ROAD LEFT)	9	13.5	3.5
219+00	LT / SBL	36 x 36	W1-5R (WINDING ROAD RIGHT)	9	13.5	3.5
223+00	RT / NBL	36 x 36	W1-2R (CURVE RIGHT)	9	13.5	3.5
231+50	LT / SBL	36 x 36	W1-2L (CURVE LEFT)	9	13.5	3.5
247+00	LT / SBL	24 x 30	R2-1-35 (35 MPH)	5	12	3.5
248+00	RT / NBL	36 x 36	W1-2R (CURVE RIGHT)	9	13.5	3.5
249+00	LT / SBL	36 x 36	W11-4 (CATTLE CROSSING)	9	13.5	3.5
259+10	LT / SBL	36 x 36	W1-2L (CURVE LEFT)	9	13.5	3.5
TOTAL				118	386	49

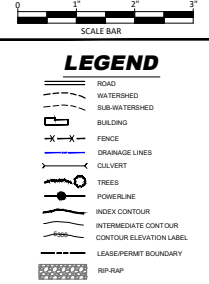
SIGN NOTES:
-ALL SIGNS AND POSTS SHALL COMPLY WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
-ALL SIGNS MUST BE EQUIPPED WITH A BREAK-AWAY BASE.
-ALL SIGNS SHALL BE LOCATED IN ACCORDANCE AS SHOWN ON THE PLAN AND IN ACCORDANCE WITH MUTCD.

PHASE 3 - BURNHAM ROAD RE-ROUTE - CULVERT TABLE											
CULVERT No.	STATION	LENGTH (LF)	(BARRELS) SIZE	CORRUGATION (INCHES)	MINIMUM COVER	SLOPE (%)	INVERT IN (ELEV.)	INVERT OUT (ELEV.)	SKW (DEG.)	END TREATMENT INLET	OUTLET
4-1	12+40	78	(5) 48"	2-2/3 X 1/2	12"	0.5	5489.7	5489.3	0	CONCRETE BLANKET	CONCRETE BLANKET
3-4	98+50	72	(1) 36"	2-2/3 X 1/2	12"	1.0	5465.8	5465.1	0	FES	FES
3-3	127+10	75	(4) 72"	5 X 1	12"	1.0	5443.1	5442.3	0	CONCRETE BLANKET	CONCRETE BLANKET
3-2	216+70	75	(1) 24"	2-2/3 X 1/2	12"	1.0	5457.7	5457.0	0	FES	FES
3-1	233+75	65	(1) 24"	2-2/3 X 1/2	12"	0.5	5457.9	5457.6	0	FES	FES

CULVERT NOTES:
-ALL CULVERTS SHALL BE GALVANIZED 16 GA. STEEL CORRUGATED METAL PIPE (CMP)
-ALL CULVERTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND NMDOT REQUIREMENTS.
-ALL CULVERTS SHALL HAVE THE SPECIFIED END TREATMENTS.
-FES INDICATED FLARED END SECTION. PROVIDE FES MATCHING THE PIPE SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
-MULTI-FES INDICATES MULTIPLE INLET FLARED END SECTION. PROVIDE MULTI-FES MATCHING THE PIPE SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
-CONCRETE BLANKET INDICATED CONCRETE BLANKET IN ACCORDANCE WITH NMDOT STD DWG 531-12-1 AND 2

PHASE 3 - BURNHAM ROAD RE-ROUTE - RIPRAP TABLE						
CULVERT No.	STATION	DISCHARGE	RIPRAP LENGTH	RIPRAP WIDTH	RIPRAP SIZE	
4-1	12+40	453.84	75'	50'	12"	
3-4	98+50	51.08	25'	35'	6"	
3-3	127+10	1060.98	150'	75'	15"	
3-2	216+70	6.36	15'	10'	6"	
3-1	233+75	5.86	15'	10'	6"	

RIPRAP NOTES:
-THE RIPRAP SHOWN IS FOR PERMIT APPLICATION PURPOSES. IT HAS NOT BEEN DESIGNED AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.
-INSTALL RIPRAP IN ACCORDANCE WITH THE PIPE OUTLET RIPRAP DETAIL ON SHEET 3-13.
-THE RIPRAP SIZE REFERS TO THE D50 SIZE.



PHASE 3 - BURNHAM ROAD RE-ROUTE BENCHMARK TABLE			
BENCHMARK No.	NORTHING	EASTING	ELEVATION
BM-1	1,975,000	298,500	5,461.9
BM-2	1,976,400	300,600	5,487.7
BM-3	1,976,500	302,300	5,506.4
BM-4	1,976,800	304,900	5,503.5
BM-5	1,977,200	307,300	5,468.5
BM-6	1,979,150	308,100	5,447.0
BM-7	1,981,700	308,150	5,465.4
BM-8	1,984,100	308,150	5,450.5
BM-9	1,986,700	307,600	5,471.2
BM-10	1,988,300	306,100	5,461.0
BM-11	1,990,600	305,800	5,476.2

BENCHMARKS ARE PROPOSED CONTROL POINTS TO BE USED FOR FUTURE CONSTRUCTION.
THE BENCHMARKS SHOULD BE LOCATED ON ACCESSIBLE TOPOGRAPHIC HIGH POINTS ADJACENT TO THE PROJECT ALIGNMENT AND OUTSIDE THE PLANNED DISTURBANCE AREA.
BENCHMARKS ARE PROVIDED AT APPROXIMATELY EVERY HALF-MILE ALONG THE ALIGNMENT.

PHASE 3 - BURNHAM ROAD RE-ROUTE MONUMENT TABLE			
BENCHMARK No.	NORTHING	EASTING	ELEVATION
M-1	197,499.87	298,376.99	5,465.0
M-2	1,986,112.82	298,942.44	5,449.5
M-3	1,977,109.85	307,382.32	5,467.2
M-4	1,977,889.92	308,084.44	5,458.4
M-5	1,985,970.69	308,142.97	5,428.2
M-6	1,986,516.27	307,830.29	5,467.0
M-7	1,986,756.90	307,413.16	5,465.0
M-8	1,987,037.17	307,180.34	5,451.2
M-9	1,987,547.83	307,000.40	5,458.3
M-10	1,987,892.06	306,704.15	5,453.7
M-11	1,988,173.63	306,174.16	5,458.6
M-12	1,988,641.36	305,995.49	5,456.6
M-13	1,990,534.30	305,910.26	5,478.6
M-14	1,991,055.20	306,435.25	5,453.2

MONUMENTS ARE TO BE PROVIDED 50 FEET RIGHT OF THE CENTERLINE AT ALL PC'S AND PT'S.
ALL MONUMENTS SHALL INCLUDE AN ACCOMPANYING REFERENCE MARKER.
INSTALL MONUMENT AND REFERENCE MARKERS IN ACCORDANCE WITH THE MONUMENT AND REFERENCE MARKER DETAIL ON SHEET 3-13

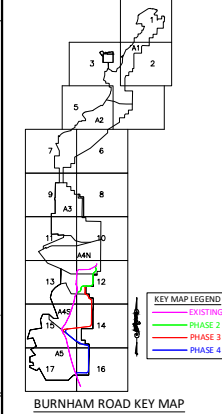
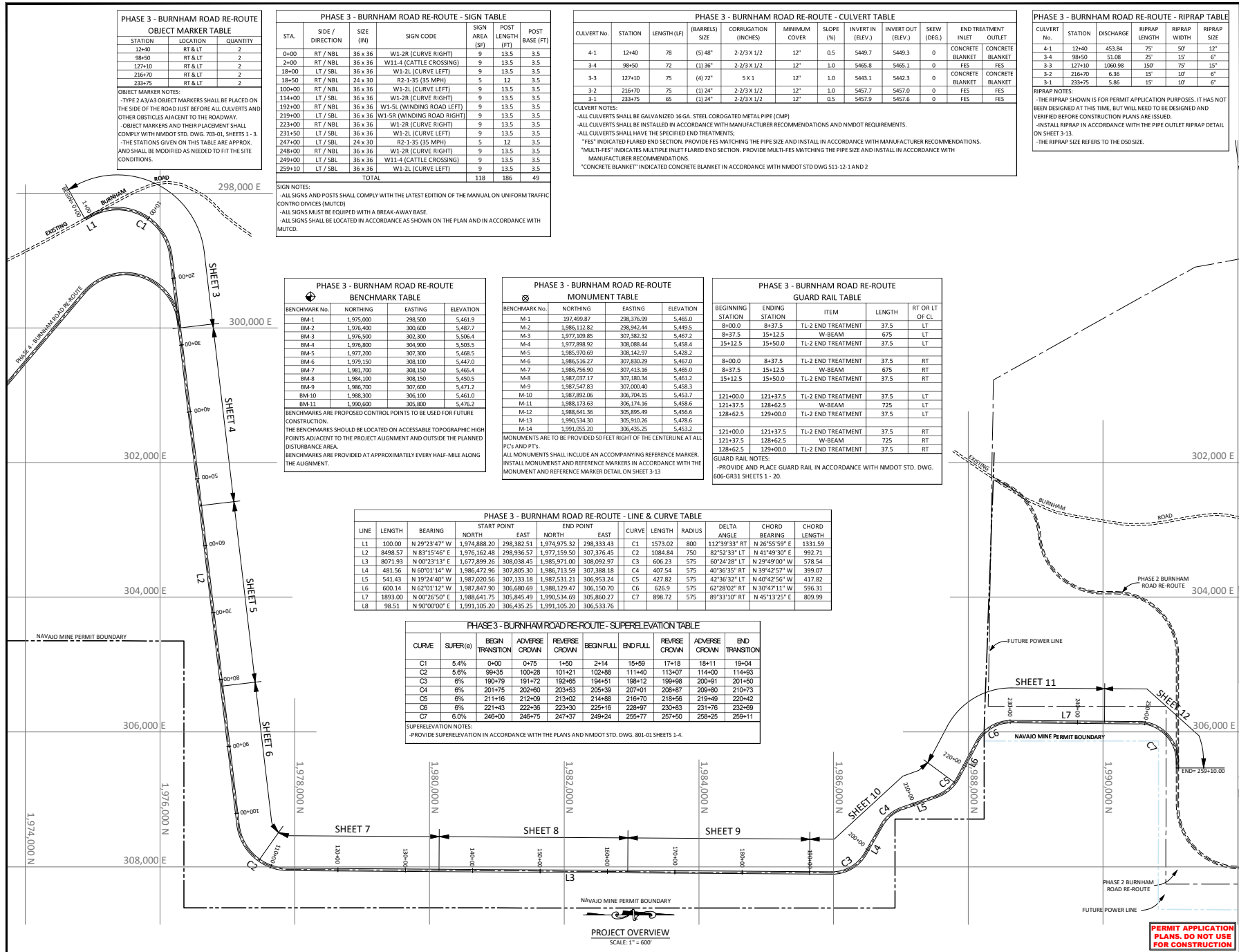
PHASE 3 - BURNHAM ROAD RE-ROUTE GUARD RAIL TABLE					
BEGINNING STATION	ENDING STATION	ITEM	LENGTH	RT OR LT OF CL	
8+00.0	8+37.5	TL-2 END TREATMENT	37.5	LT	
8+37.5	15+12.5	W-BEAM	675	LT	
15+12.5	15+50.0	TL-2 END TREATMENT	37.5	LT	
8+00.0	8+37.5	TL-2 END TREATMENT	37.5	RT	
8+37.5	15+12.5	W-BEAM	675	RT	
15+12.5	15+50.0	TL-2 END TREATMENT	37.5	RT	
121+00.0	121+37.5	TL-2 END TREATMENT	37.5	LT	
121+37.5	128+62.5	W-BEAM	725	LT	
128+62.5	129+00.0	TL-2 END TREATMENT	37.5	LT	
121+00.0	121+37.5	TL-2 END TREATMENT	37.5	RT	
121+37.5	128+62.5	W-BEAM	725	RT	
128+62.5	129+00.0	TL-2 END TREATMENT	37.5	RT	

GUARD RAIL NOTES:
-PROVIDE AND PLACE GUARD RAIL IN ACCORDANCE WITH NMDOT STD. DWG. 606-GR31 SHEETS 1 - 20.

PHASE 3 - BURNHAM ROAD RE-ROUTE - LINE & CURVE TABLE									
LINE	LENGTH	BEARING	START POINT	END POINT	CURVE	LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING
L1	100.00	N 29°13'47" W	1,974,889.20	298,382.51	1,974,975.75	298,333.43	C1	1573.02	800
L2	8498.57	N 83°15'46" E	1,976,162.48	298,936.57	1,977,159.50	307,376.45	C2	1084.84	750
L3	8071.93	N 00°23'13" E	1,677,899.26	308,038.45	1,985,971.00	308,092.97	C3	606.23	575
L4	481.56	N 60°01'14" W	1,986,472.96	307,805.30	1,986,713.59	307,388.18	C4	407.54	575
L5	541.43	N 19°24'40" W	1,987,020.56	307,133.18	1,987,531.21	306,953.24	C5	427.82	575
L6	600.14	N 62°01'12" W	1,987,847.90	306,080.69	1,988,129.47	306,150.70	C6	638.9	575
L7	1893.00	N 00°26'50" E	1,988,641.75	305,845.49	1,990,534.69	305,860.27	C7	898.72	575
L8	98.51	N 90°00'00" E	1,991,105.20	306,435.25	1,991,105.20	306,533.76			

PHASE 3 - BURNHAM ROAD RE-ROUTE - SUPERELEVATION TABLE									
CURVE	SUPER(e)	BEGIN TRANSITION	ADVERSE CROWN	REVERSE CROWN	BEGIN FULL	END FULL	REVERSE CROWN	ADVERSE CROWN	END TRANSITION
C1	5.4%	0+00	0+75	1+50	2+14	15+59	17+18	18+11	19+04
C2	5.6%	99+35	100+28	101+21	102+88	111+40	113+07	114+00	114+93
C3	6%	190+79	191+72	192+65	194+51	199+68	200+91	201+50	
C4	6%	201+75	202+60	203+43	205+39	207+01	208+87	209+80	210+73
C5	6%	211+16	212+09	213+02	214+88	216+70	218+46	219+49	220+42
C6	6%	221+43	222+36	223+30	225+16	228+97	230+83	231+76	232+69
C7	6.0%	246+00	246+75	247+37	249+24	255+77	257+50	258+25	259+11

SUPERELEVATION NOTES:
-PROVIDE SUPERELEVATION IN ACCORDANCE WITH THE PLANS AND NMDOT STD. DWG. 801-01 SHEETS 1-4.



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Digitally signed by Shawn T. Smith
Reason: I have reviewed this document
Location:
Date: 2026.03.31 15:40:48-0700

PERMIT APPLICATION PLANS
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EXHIBIT 40.6-1
SHEET 2 OF 25

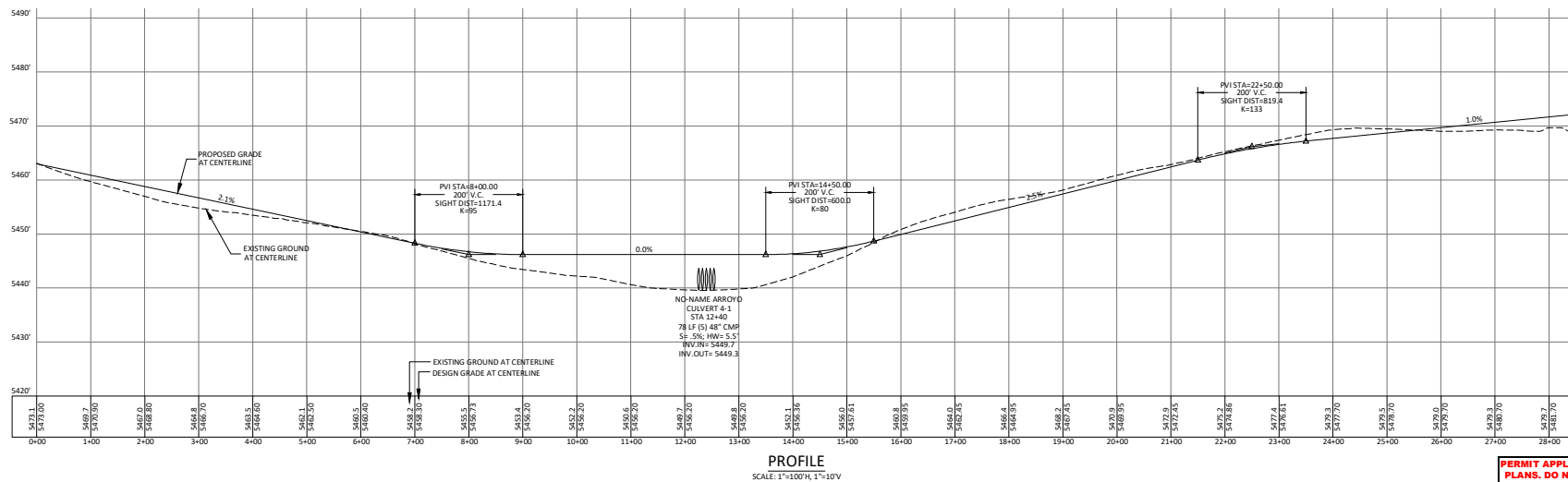
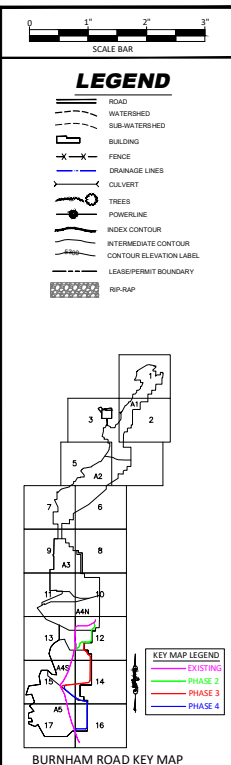
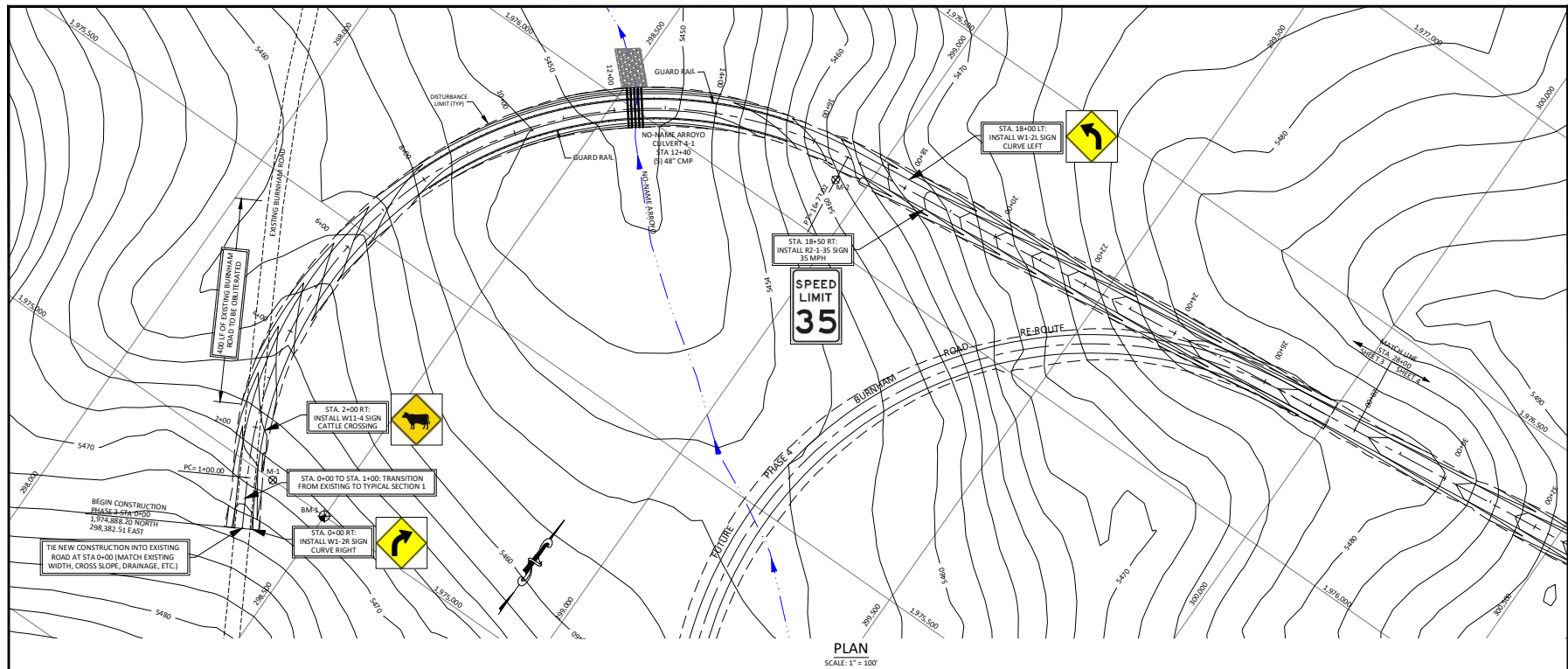
Navajo Mine
Navajo Energy Company

PHASE 3
BURNHAM ROAD RE-ROUTE

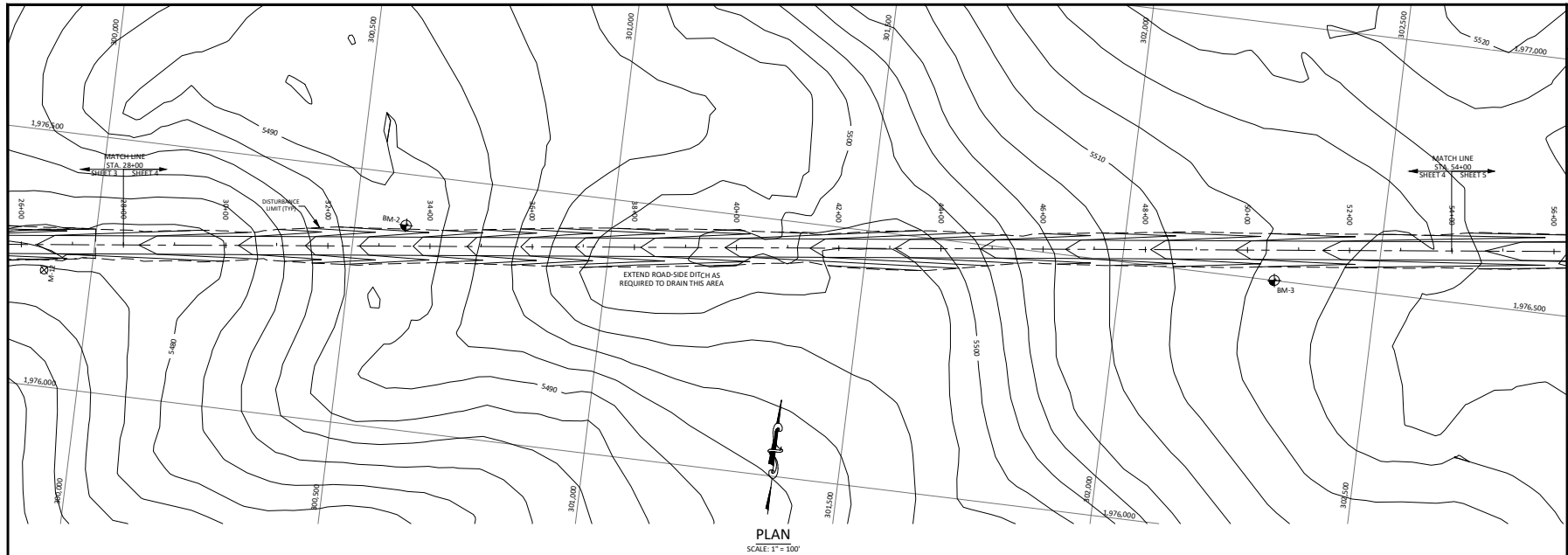
PROJECT OVERVIEW W/
NOTES, TABLES & DETAILS

Prepared By: PAR
Checked By: PAR
Date: 2025-09-23
Scale: As Noted
Project: 254-9476
Sheet: 3-02

PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION

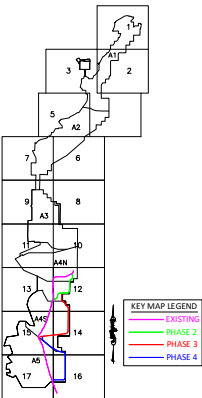


PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION



LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- R/R/RAIP



BURNHAM ROAD KEY MAP

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EXHIBIT 40.6-1 SHEET 4 OF 25

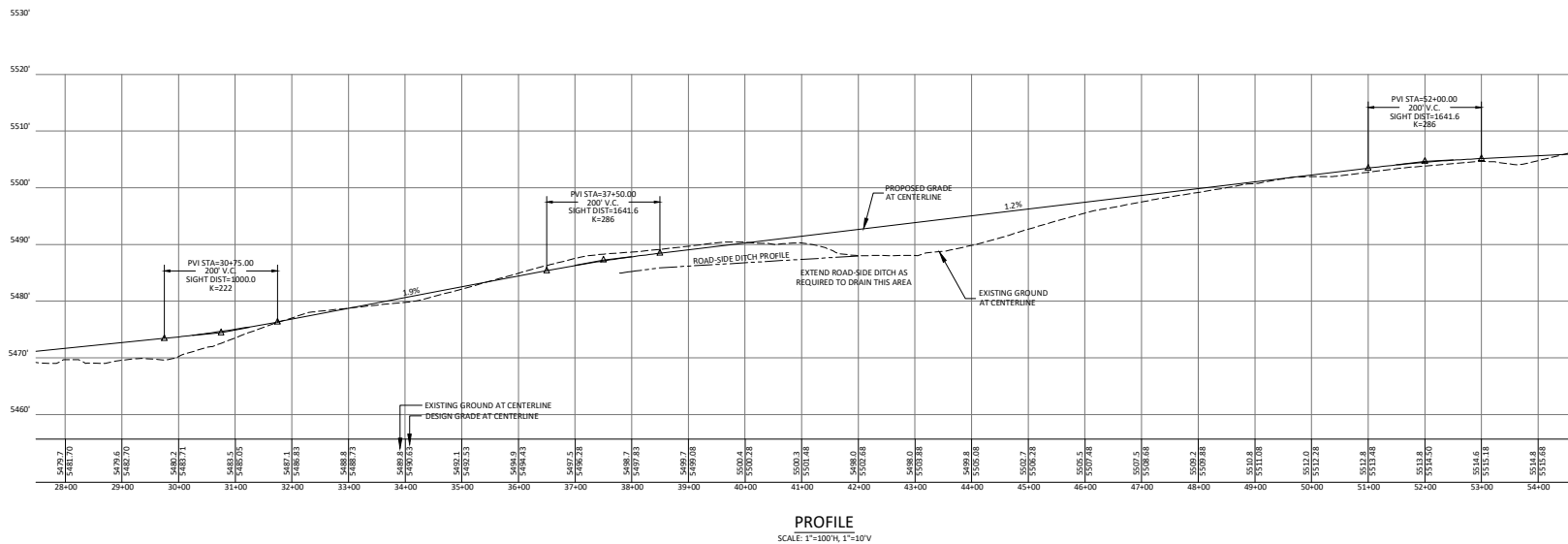


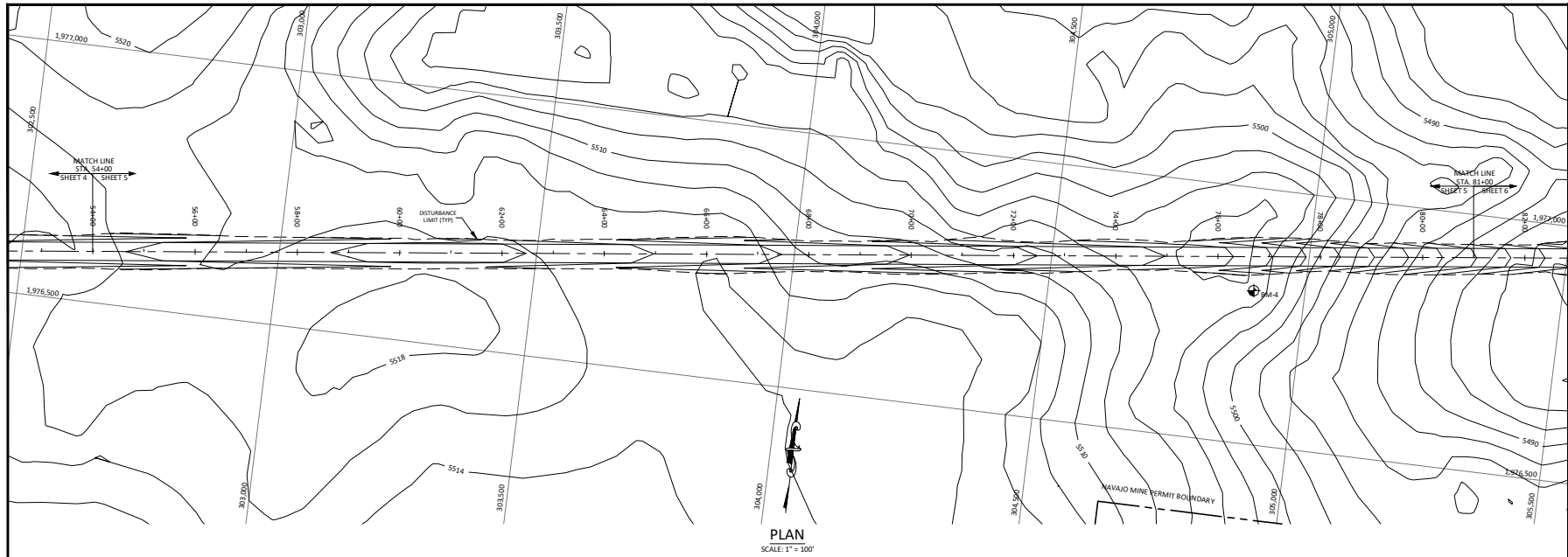
Navajo Mine PHASE 3 BURNHAM ROAD RE-ROUTE

PLAN & PROFILE STA. 28+00 TO 54+00

Prepared By: PAR
Drawn By: PAR
Date: 2025-09-23
Scale: As Noted
Checked By: PAR
Date: 2025-09-23
Scale: As Noted
Project: 254-A-076
Sheet: 3-04

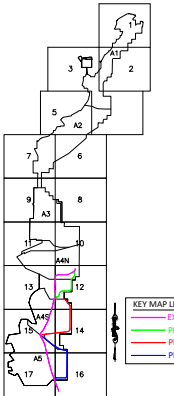
**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**





LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RIP-RAP



BURNHAM ROAD KEY MAP

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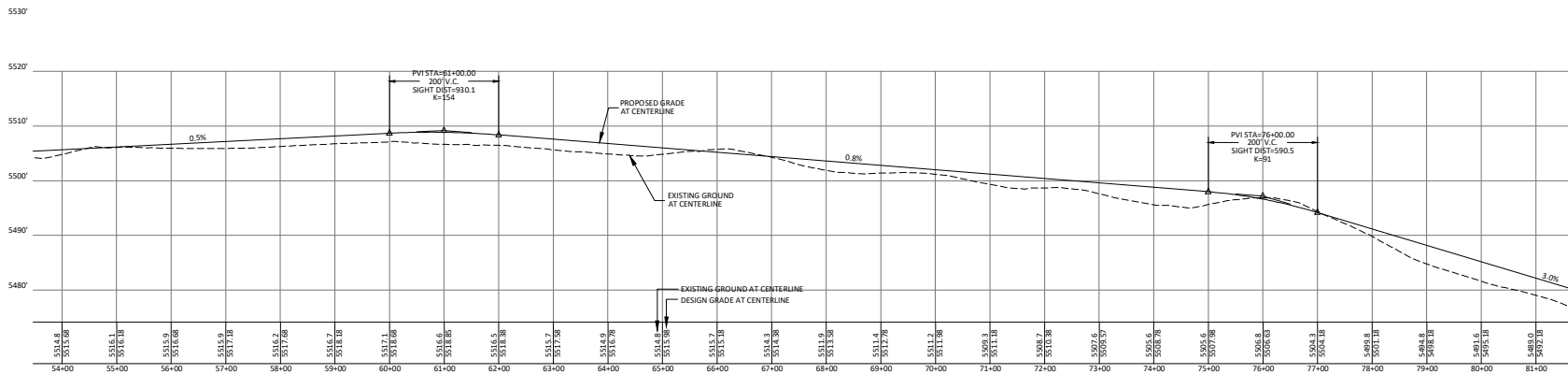
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Reason: I have reviewed this document
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EXHIBIT 40.6-1 SHEET 5 OF 25

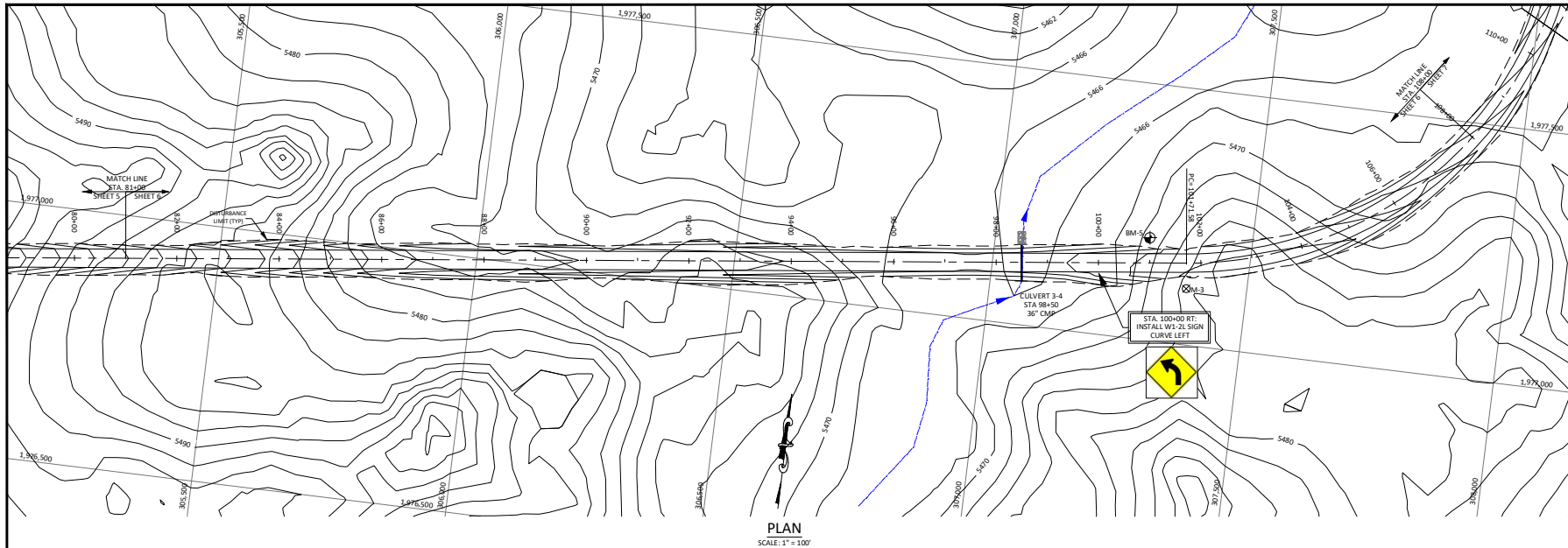
Navajo Mine
**PHASE 3
BURNHAM ROAD RE-ROUTE**

PLAN & PROFILE STA. 54+00 TO 81+00



PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION

Prepared By: PAR Drawn By: PAR Scale: As Noted
Approved By: [Signature] Date: 2025-09-23 Per Date: 9/23/25
PROJECT: 254-4476
Drawing: 254-B-01 BURNHAM ROAD RE-ROUTE.dwg



LEGEND

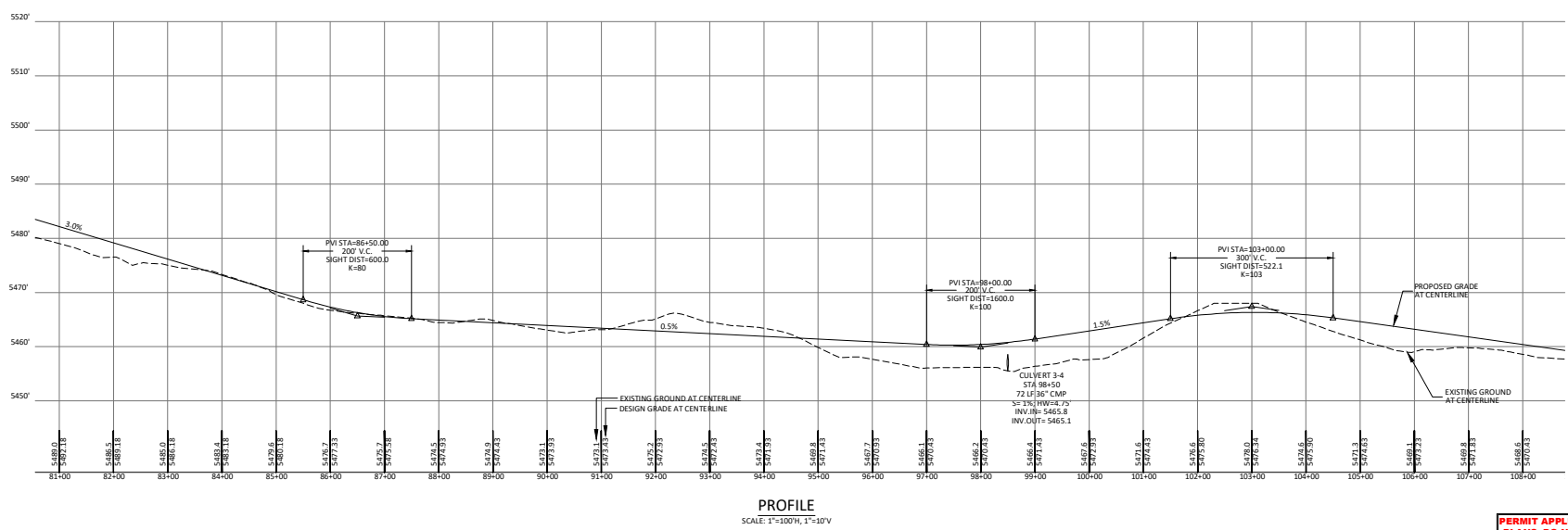
- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RP-RAP

KEY MAP LEGEND

- EXISTING
- PHASE 2
- PHASE 3
- PHASE 4

BURNHAM ROAD KEY MAP

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EXHIBIT 40.6-1
SHEET 8 OF 25

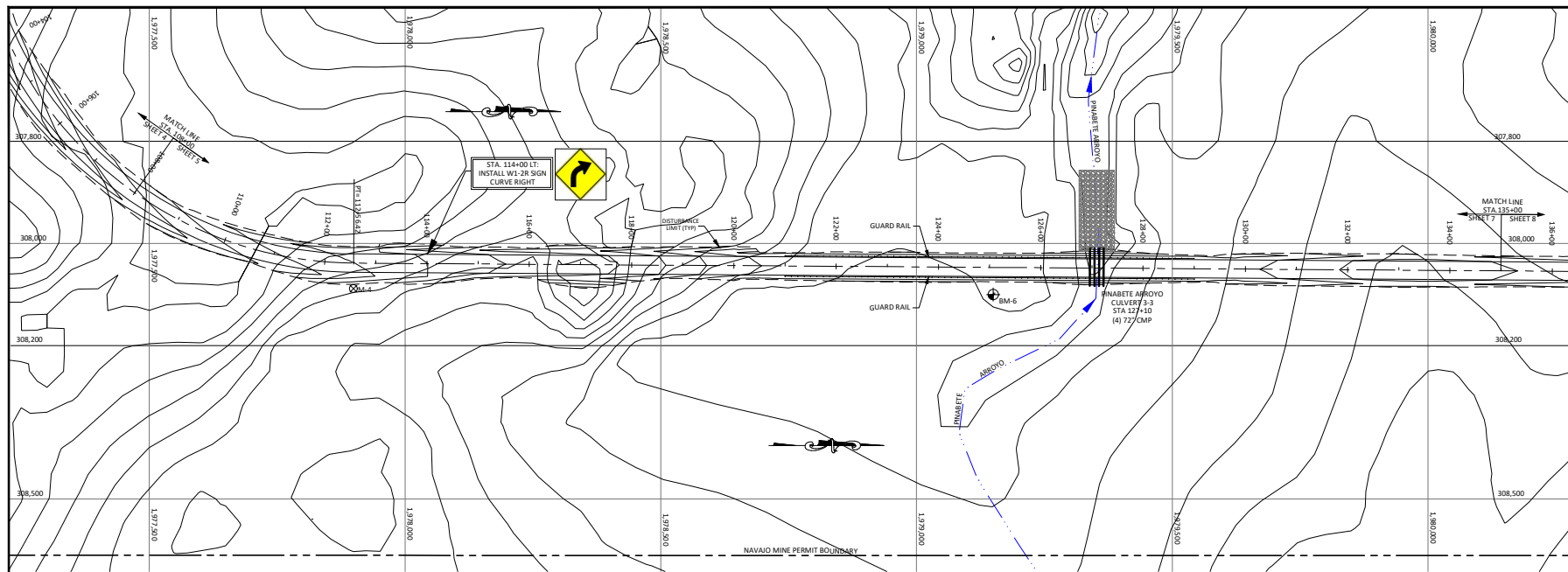
Navajo Mine
PHASE 3
BURNHAM ROAD RE-ROUTE

PLAN & PROFILE
STA. 81+00 TO 108+00

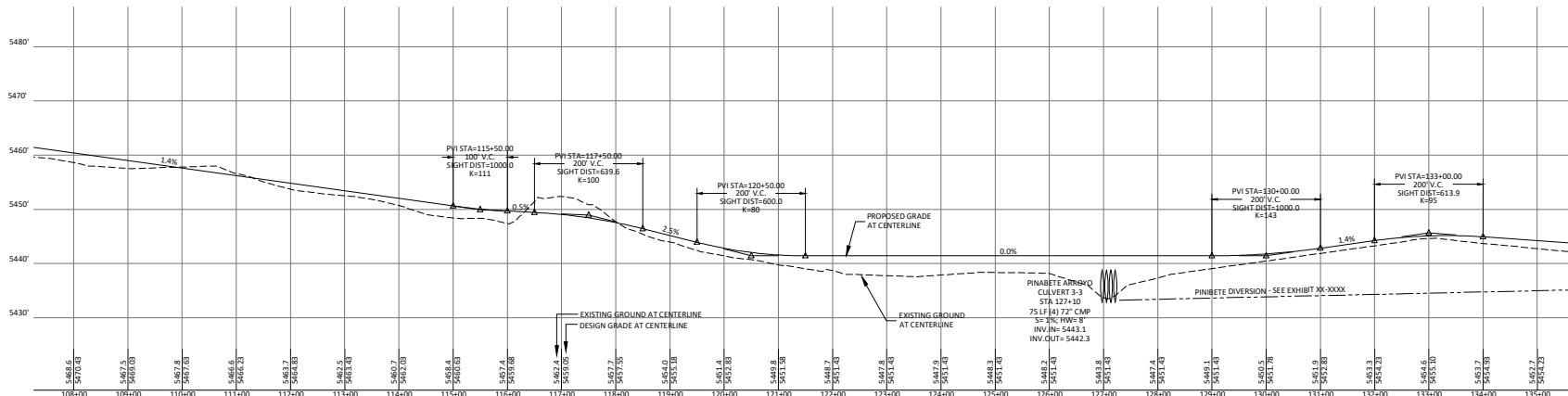
Prepared By: PAR
Reviewed By: PAR
Checked By: PAR
Date: 2025-09-23
Project: 254-1476
Sheet: 202-40-1 BURNHAM ROAD RE-ROUTE.dwg

Scale: As Noted
P.O. Date: 9/23/25
3-06

PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION



PLAN
SCALE: 1" = 100'

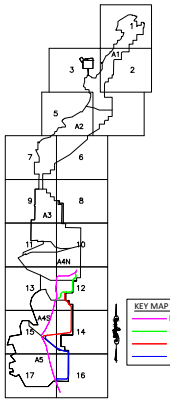


PROFILE
SCALE: 1"=100H, 1"=10V



LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RP-RAP



BURNHAM ROAD KEY MAP

ADDITIONAL MINE STRUCTURES INCLUDING, ROADS, RAILROADS, PONDS, IMPOUNDMENTS AND CULVERTS, ALTHOUGH PRESENT ON THIS EXHIBIT AS PART OF BASE MAPPING, ARE NOT INTENDED TO BE CURRENT OR ACCURATE ON THIS EXHIBIT. PLEASE REFER TO THE APPROPRIATE P.A.P. TEXT SECTION FOR A MINE STRUCTURE EXHIBIT REFERENCE.

CERTIFICATION STATEMENT
I, Shawn T. Smith, hereby certify that this drawing was prepared by me and that the information shown is complete and accurate to the best of my knowledge.
Digitally signed by Shawn Smith
Reason: I have reviewed this document
Location:
Date: 2025.03.31 15:40:48-0700'

PERMIT APPLICATION PLANS
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**EXHIBIT 40.6-1
SHEET 7 OF 25**

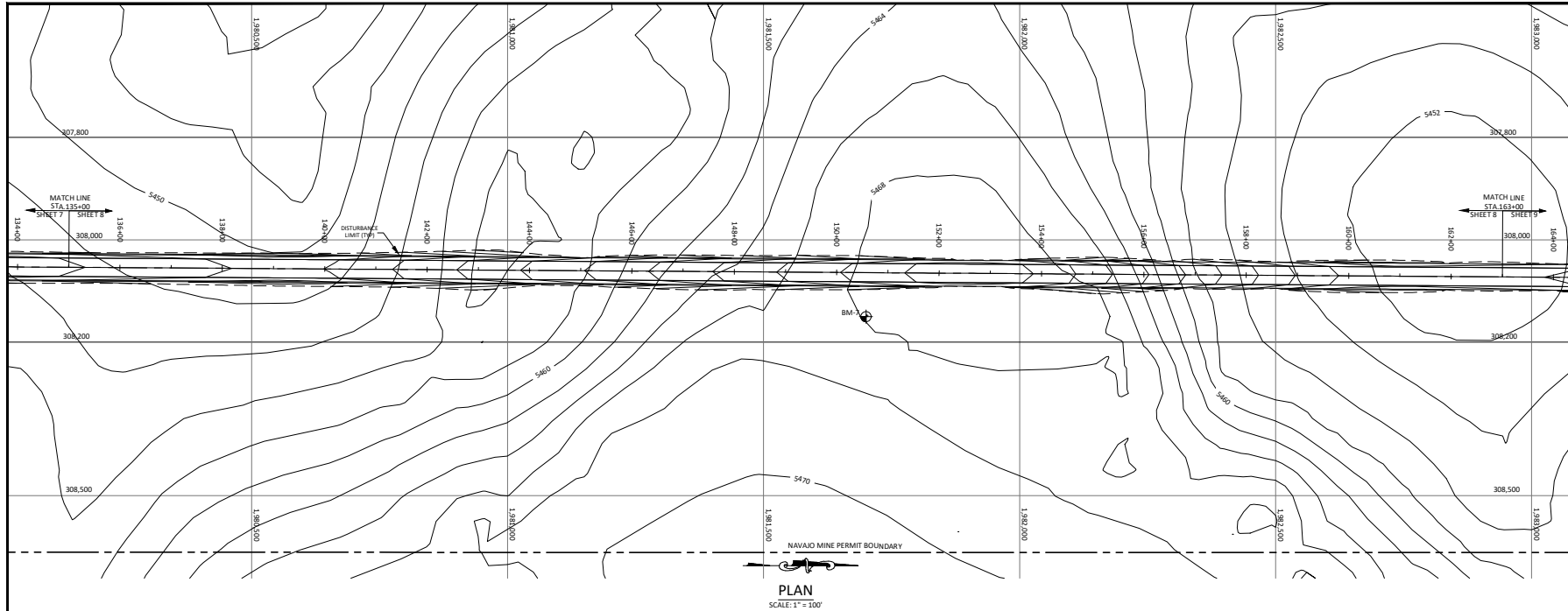


Navajo Mine
**PHASE 3
BURNHAM ROAD RE-ROUTE**

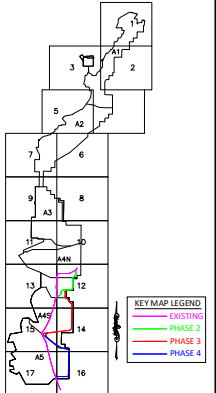
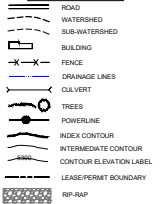
PLAN & PROFILE
STA. 108+00 TO 135+00

Prepared By: PAR Drawn By: PAR Scale: As Noted
Reviewed By: PAR Date: 2025-09-23 File: 00225
COMBAT Project: 254-5476 SHEET 3-07

**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**



LEGEND



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Location:
Date: 2025.03.31 15:40:48-0700'

REV	DATE	DESCRIPTION	BY	CHKD
1	01/09/25	REVISED PER COMMENTS	SHAWN T. SMITH	SHAWN T. SMITH

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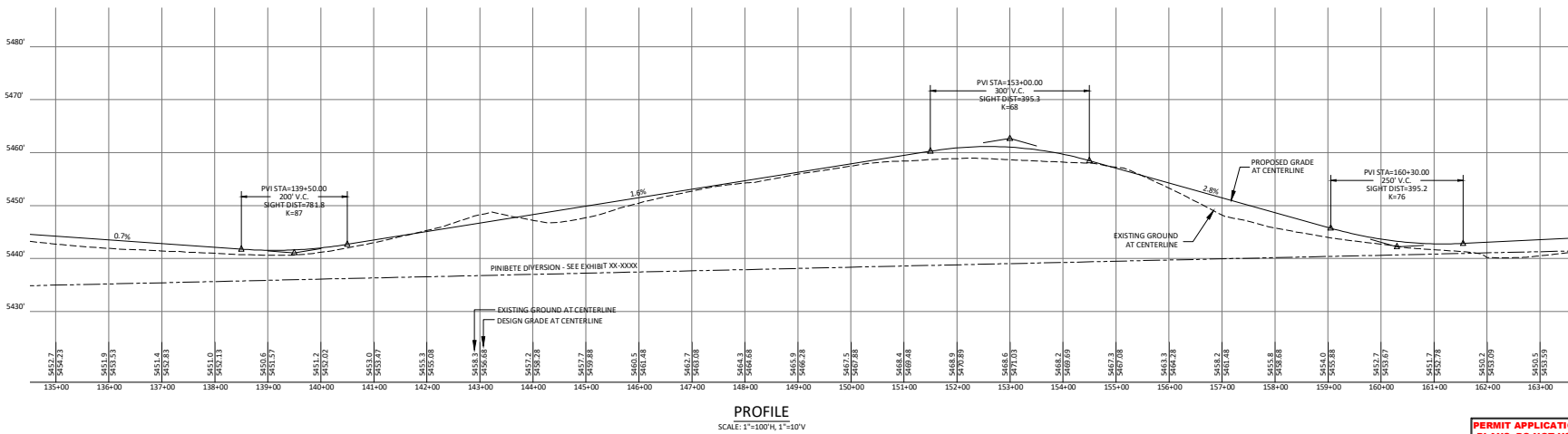
EXHIBIT 40.6-1 SHEET 8 OF 25

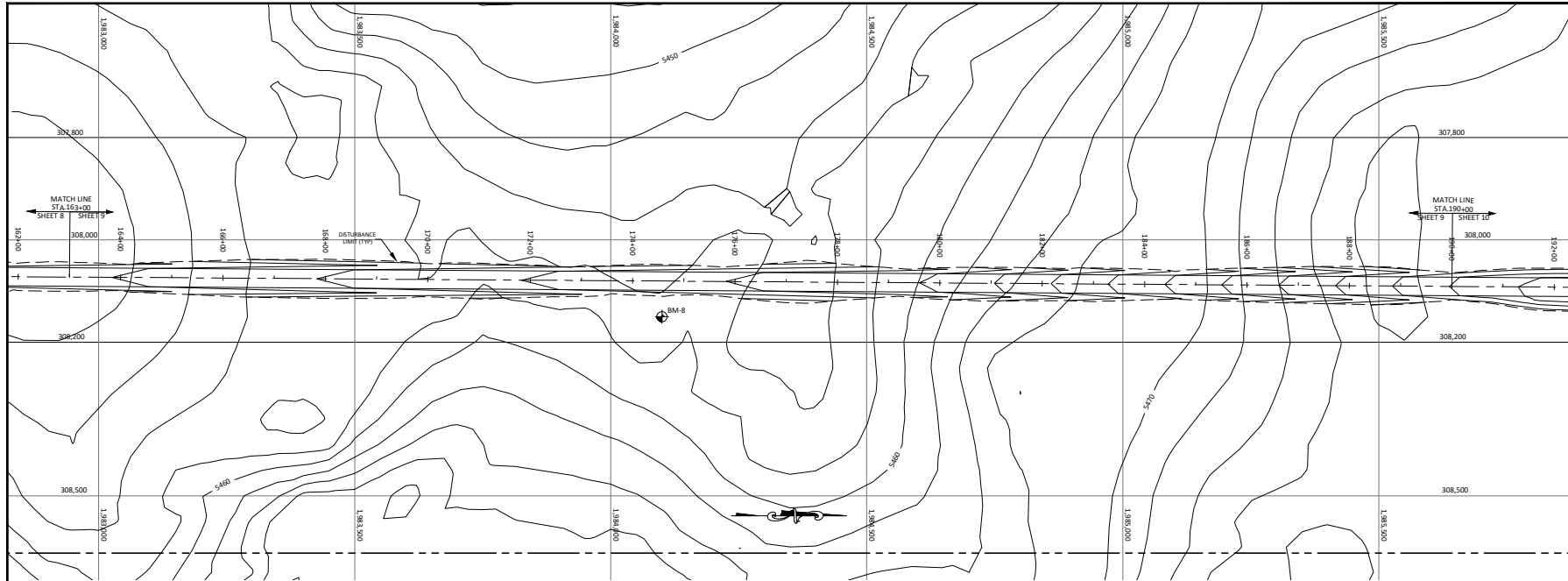


PLAN & PROFILE STA. 135+00 TO 163+00

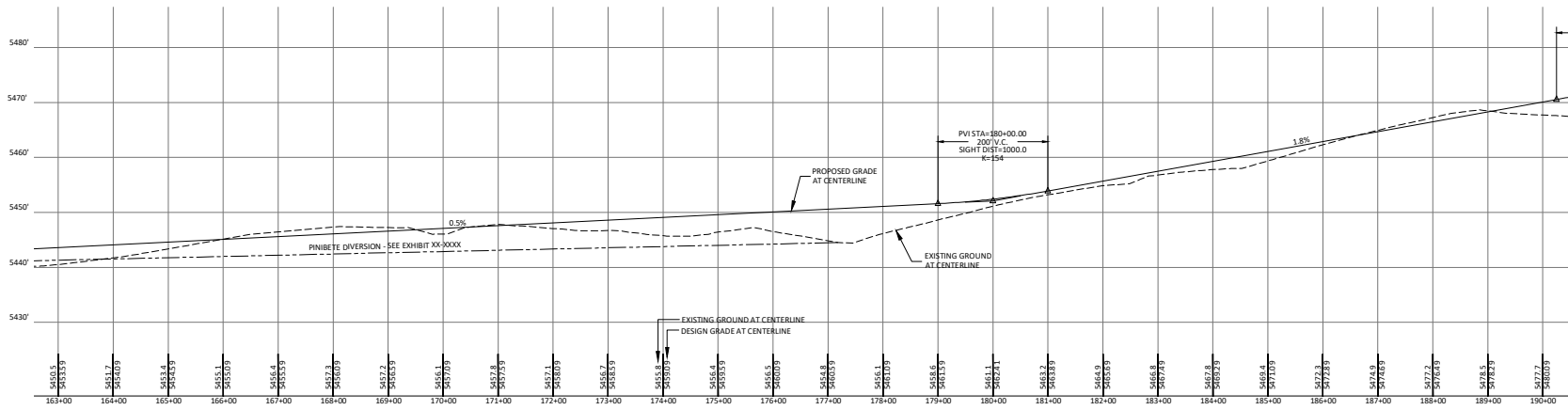
Prepared By: PAR Drawn By: PAR
Reviewed By: PAR Date: 2025-09-23
AUTOMAT PROJECT: 254-5476
Drawing: 2025-09-23 BURNHAM ROAD RE-ROUTE.dwg
Scale: As Noted
Sheet: 3-08

**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**





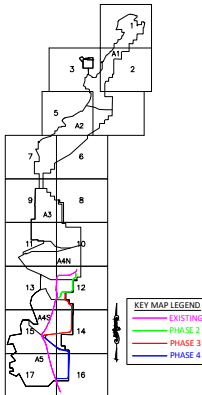
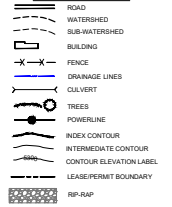
PLAN
SCALE: 1" = 100'



PROFILE
SCALE: 1" = 100', 1" = 10'



LEGEND



BURNHAM ROAD KEY MAP

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Digitally signed by Shawn Smith Reason: I have reviewed this document Location: Date: 2025.03.31 15:40:48-0000'

NO.	DATE	BY	REVISIONS
1	03/31/25	PAR	REVISED FOR CONSTRUCTION

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EXHIBIT 40.6-1 SHEET 9 OF 25

Navajo Mine
**PHASE 3
BURNHAM ROAD RE-ROUTE**

PLAN & PROFILE STA. 163+00 TO 190+00

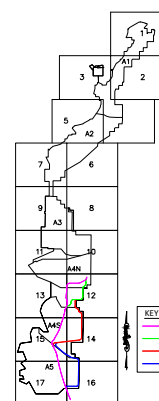
Prepared By: PAR Date: 2025-09-23 Scale: As Noted
Reviewed By: PAR Date: 2025-09-23
SHEET: 3-09

**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**



LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RP-RAP



BURNHAM ROAD KEY MAP

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Reason: I have reviewed this document
Location:
Date: 2025.03.31 15:40:48-0700

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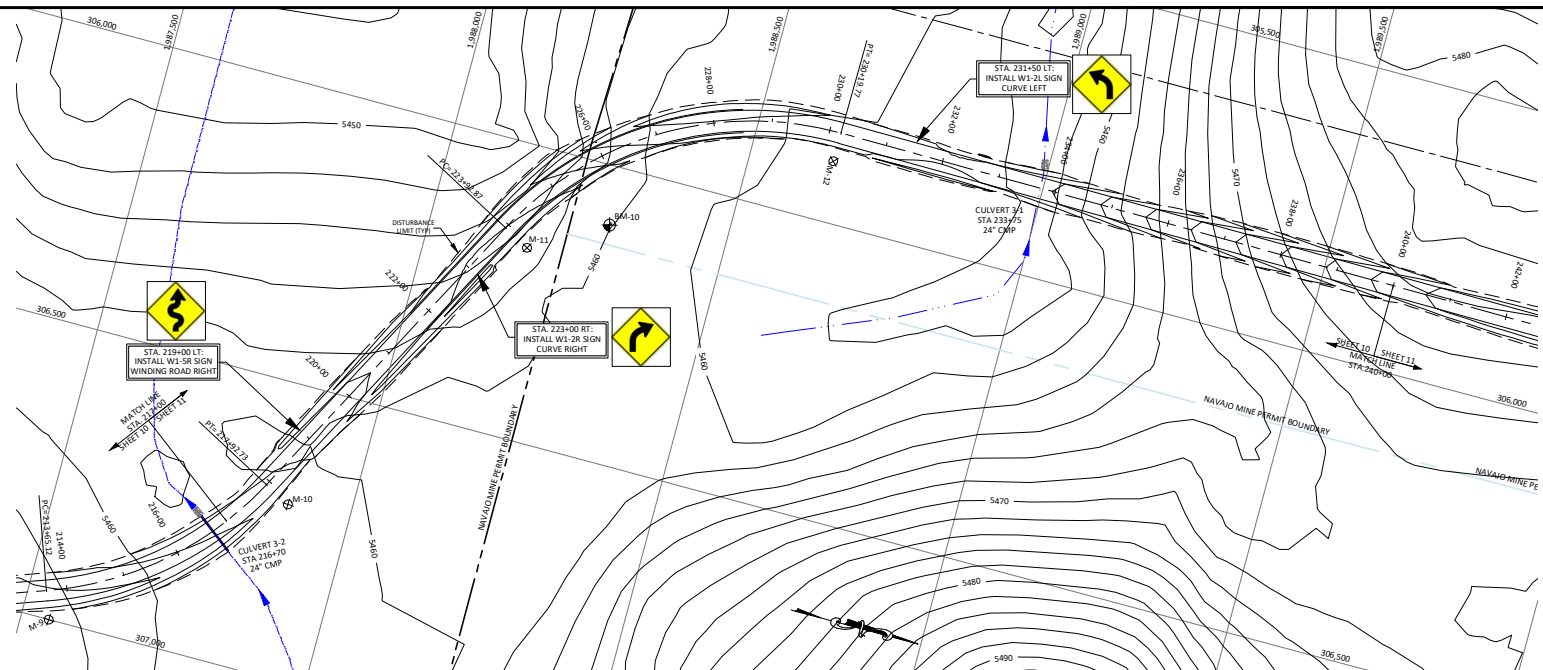
EXHIBIT 40.6-1 SHEET 11 OF 25

Navajo Transitional Energy Company
Navajo Mine
PHASE 3
BURNHAM ROAD RE-ROUTE

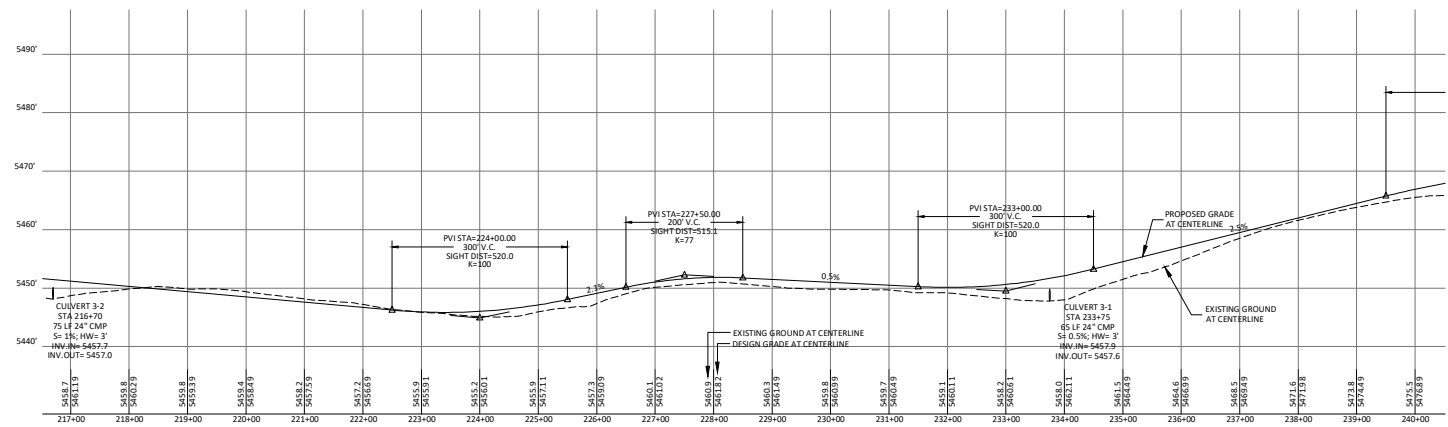
PLAN & PROFILE STA. 217+00 TO 240+00

Prepared By: PAR Drawn By: PAR Scale: As Noted
Reviewed By: [Signature] Date: 2025-09-23 Project: 234-5476
Secondary Project: 234-5476
Drawing: 205-00-01 BURNHAM ROAD RE-ROUTE.dwg

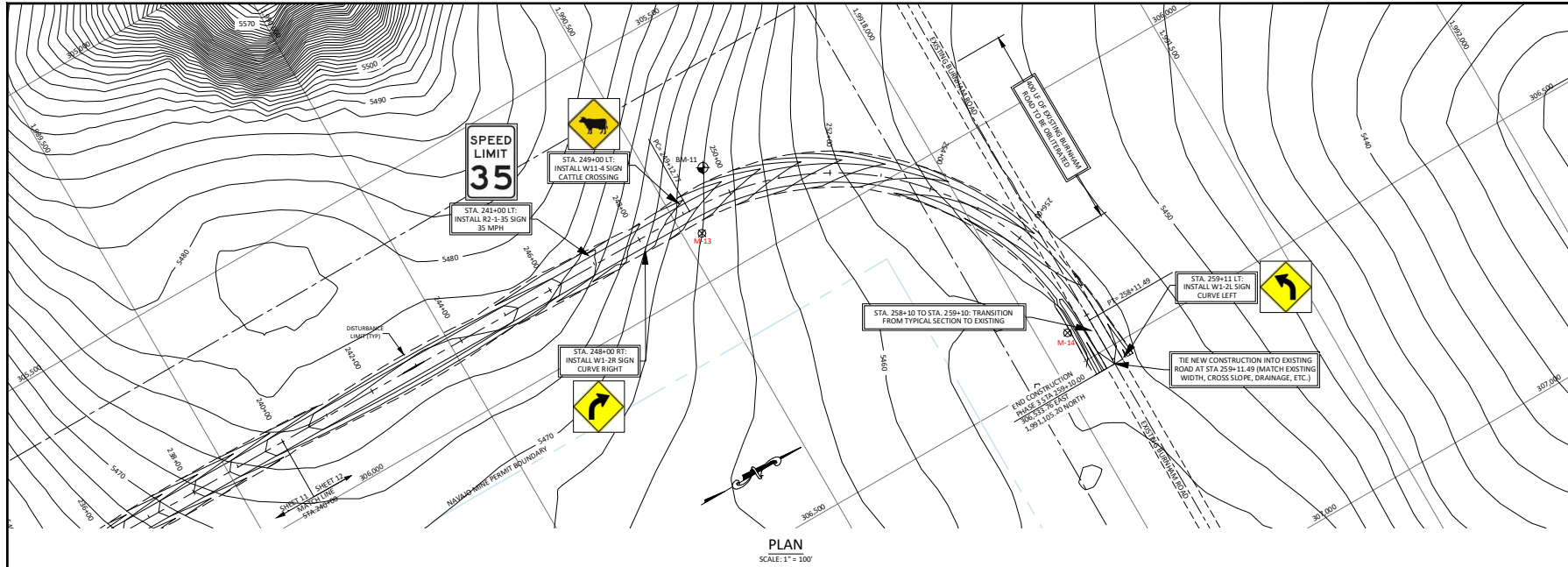
**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**



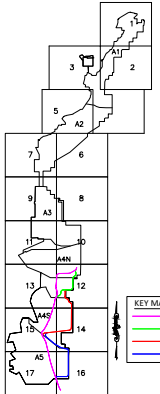
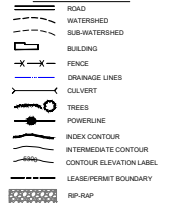
PLAN
SCALE: 1" = 100'



PROFILE
SCALE: 1"=100'H, 1"=10'V



LEGEND



BURNHAM ROAD KEY MAP

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Reason: I have reviewed this document
Location:
Date: 2025.03.31 15:40:48-0700

NO.	DATE	REVISION DESCRIPTION
1	03/25/25	ISSUED FOR PERMIT

PERMIT APPLICATION PLANS

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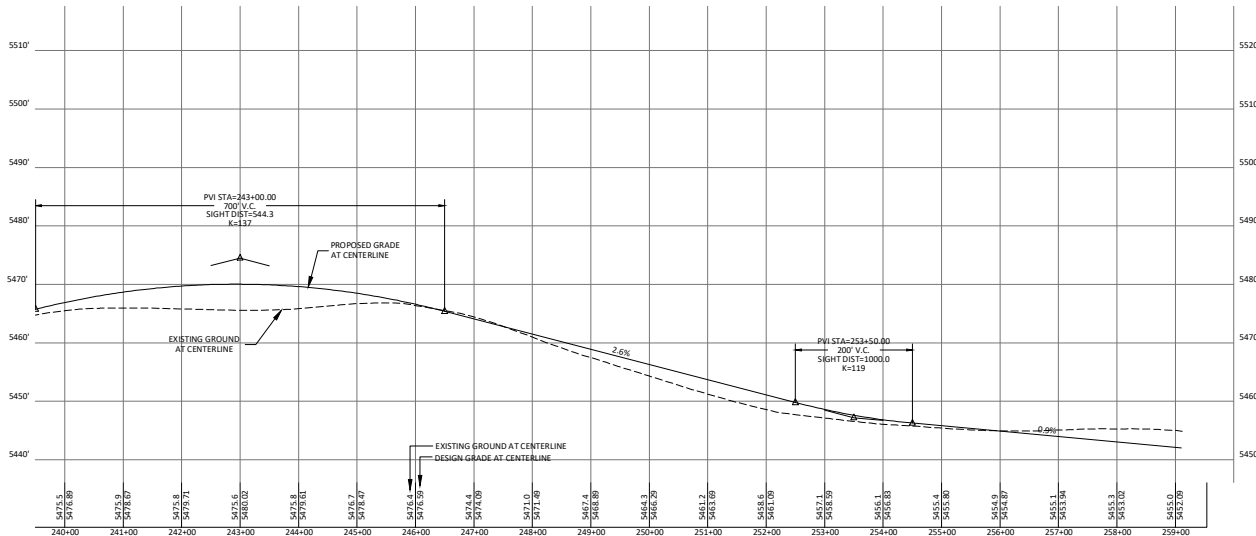
EXHIBIT 40.6-1 SHEET 12 OF 25

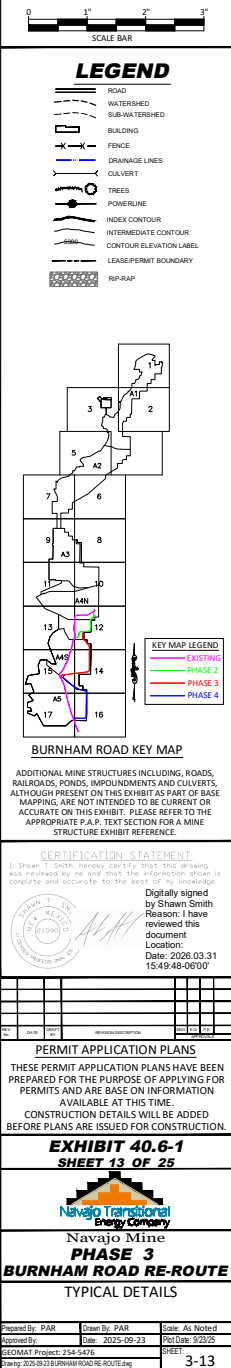
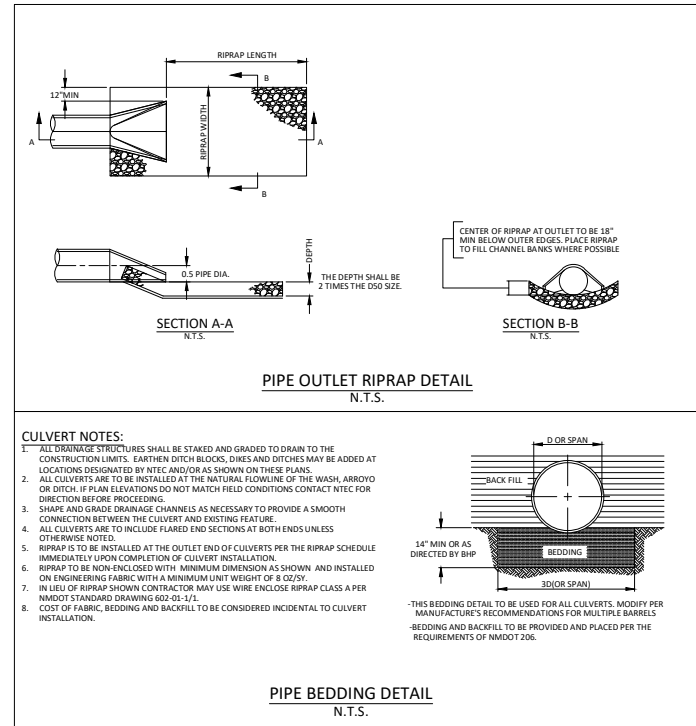
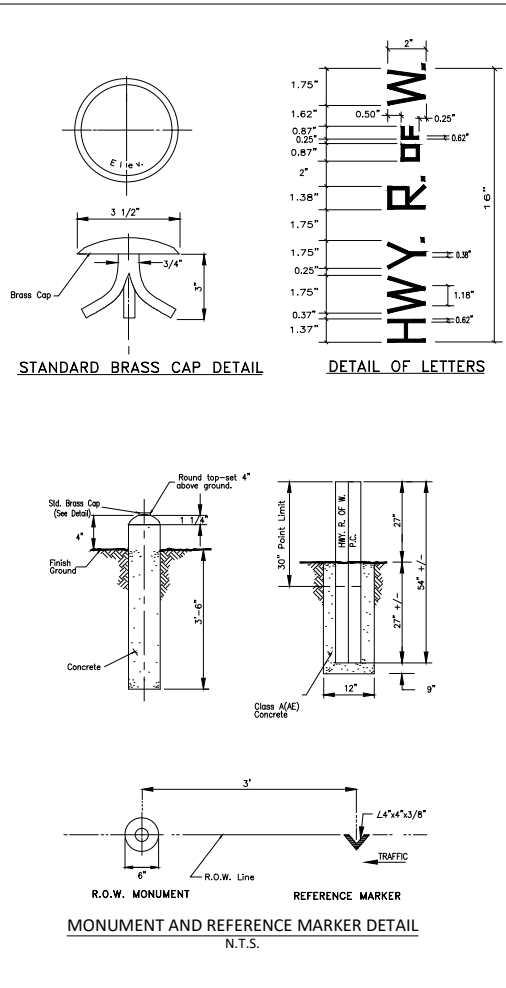


PLAN & PROFILE STA. 240+00 TO 258+00

Prepared By: PAR Drawn By: PAR Date: 2025-09-23 Scale: As Noted
Reviewed By: [Signature] Designated Project: 254-5476 Project No: 302529
Drawing: 254-06-12 BURNHAM ROAD RE-ROUTE.dwg SHEET: 3-12

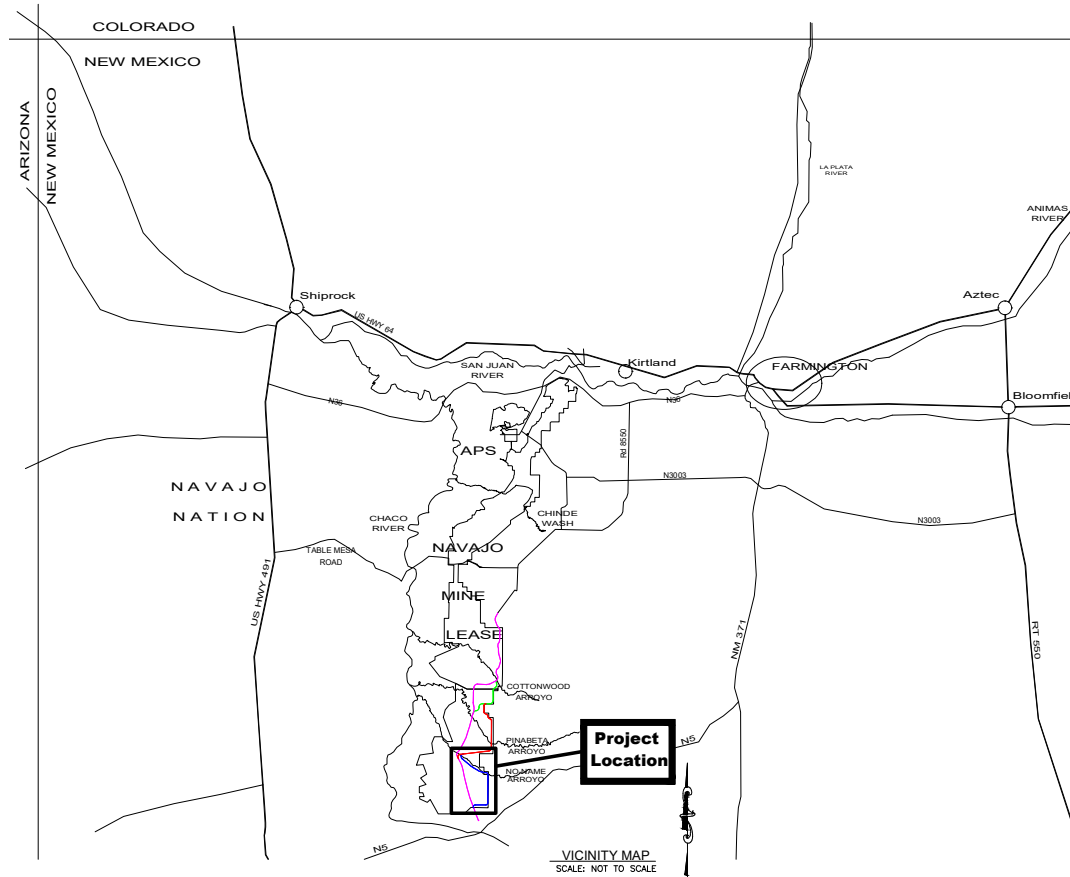
**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**





PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION

PHASE 4 - BURNHAM ROAD RE-ROUTE
BIA N5082
NAVAJO TRANSITIONAL ENERGY COMPANY (NTEC)
EXHIBIT 40.6-1

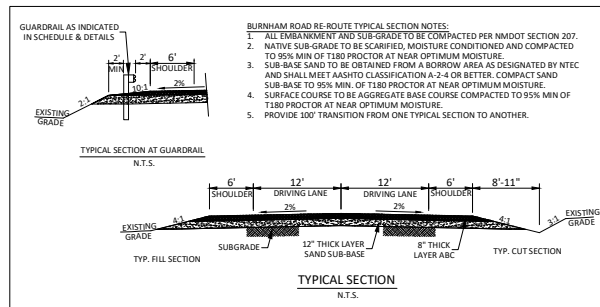


DESIGN PARAMETERS

ADT	1,200 vpd
DESIGN SPEED LIMIT	40 mph
POSTED SPEED LIMIT	35 mph
MIN. STOPPING DISTANCE	305 ft
MAX. GRADIENT	6 %
MAX. SUPER ELEVATION	6 %
MIN. HORIZONTAL CURVE RADIUS	575 ft
MIN. VERTICAL CURVE "K"	44 (CREST) 64 (SAG)

PROJECT LENGTH

ROAD	LENGTH, ft.	LENGTH, miles
PHASE 3 - BURNHAM ROAD RE-ROUTE BEGINNING STATION 0+00 ENDING STATION 259+10	25,910	4.91
PHASE 4 - BURNHAM ROAD RE-ROUTE BEGINNING STATION 0+00 ENDING STATION 246+34	24,634	4.66



GENERAL NOTES

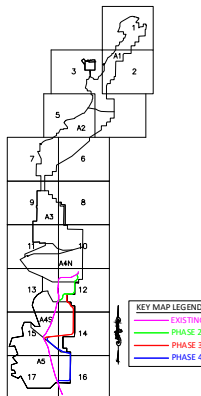
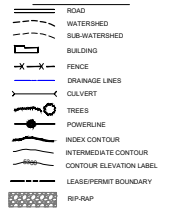
- THE CONTOURS, PERMIT/LEASE LINES AND OTHER FEATURES HAVE BEEN PROVIDED BY NTEC FOR USE IN THE DEVELOPMENT OF THIS DESIGN.
- ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE NEW MEXICO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND THE PROJECT SUPPLEMENTAL SPECIFICATIONS.
- ALL PERMANENT AND TEMPORARY ROADSIDE SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS AND IN ACCORDANCE WITH THE DETAILS ON THESE PLANS.
- THE DESIGN FEATURE SUCH AS ALIGNMENT, CULVERT SIZE OR ROAD WIDTH WILL NOT BE ALTERED OR MODIFIED WITHOUT PRIOR APPROVAL. ROAD ELEVATION MAY BE UPDATED DURING CONSTRUCTION WHICH WILL BE UPDATED IN THE AS-BUILT.
- NO WORK SHALL BE PERFORMED OUTSIDE OF THE DESIGNATED DISTURBANCE LIMITS WITHOUT APPROVAL.
- REMOVE TOPSOIL FROM AREAS TO BE IDENTIFIED BY NTEC, AND HAUL TO THE TOPSOIL STOCKPILE SPECIFIED BY NTEC. TOPSOIL STRIPPING IS TO BE COORDINATED WITH NTEC'S SO SPECIALIST WHO WILL BE ON SITE TO ENSURE THAT ONLY MATERIAL MEETING TOPSOIL SPECIFICATION IS DCAVATED.
- ALL ROADSIDE DITCHES AND DRAINAGE STRUCTURES SHALL BE STAKED AND GRADED TO DRAIN UP TO THE CONSTRUCTION LIMITS. EARTHEN DITCH BLOCKS, DIKES AND DITCHES MAY BE ADDED AT LOCATIONS DESIGNATED BY THE OWNER AND/OR AS SHOWN ON THESE PLANS. AT ALL CULVERT INLETS AND OUTLETS, DRAINAGE SHALL BE GRADED AS NECESSARY TO HELP PRODUCE SMOOTH FLOW/CONNECTIONS BETWEEN CULVERTS AND EXISTING WASHES/CHANNELS.
- IMMEDIATELY PRIOR TO PLACING THE SURFACE COURSE, THE TOP 8 INCHES OF FINISHED SUBGRADE (INCLUDING TURNOUTS) SHALL BE CHECKED FOR COMPACTION AND GRADE. IF COMPACTION DOES NOT MEET THE MINIMUM SPECIFIED COMPACTION REQUIREMENTS, THE SUBGRADE SHALL BE MOISTURE CONDITIONED AND/OR SCARIFIED AS NEEDED AND RE-COMPACTED TO THE REQUIRED DENSITY. IN NO CASE SHALL ANY EMBANKMENT OR SURFACING MATERIAL BE PLACED ON FROZEN, MUDDY OR UNSTABLE NATURAL GROUND. THIS WORK SHALL BE CONSIDERED INCIDENTAL OBLIGATIONS OF THE CONTRACTOR.
- THE LOCATIONS OF UTILITIES SHOWN IN THESE PLANS IS APPROXIMATE AND IS PROVIDED ONLY TO ASSIST THE CONTRACTOR IN COMPLETING THE WORK. THE CONTRACTOR SHALL VERIFY ALL UTILITIES AND THEIR LOCATIONS WITH THE UTILITY OWNERS PRIOR TO CONSTRUCTION. ANY UTILITIES DAMAGED DUE TO NEGLIGENCE OF THE CONTRACTOR SHALL BE RESTORED TO THE UTILITY OWNER'S REQUIREMENTS AT THE CONTRACTOR'S EXPENSE.
- ANY EXISTING OR NEW ROADSIDE FEATURES OR OTHER IMPROVEMENTS NEGLIGENTLY DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
- GRADE AND SHAPE THE NEW SHOULDER (AS REQUIRED) FROM THE SUBGRADE HINGE POINTS TO AND INCLUDING THE EXISTING DITCH LINE FOR THE CONSTRUCTION OF DITCH LINING AREAS, SLOPE PROTECTION, AND RIPRAP RUNDOWNS.

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
3-01	PHASE 3 COVER SHEET
3-02	PHASE 3 OVER-ALL PLAN W/ NOTES, TABLE & DETAILS
3-03	PHASE 3 PLAN AND PROFILE: STA 0+00 TO 28+00
3-04	PHASE 3 PLAN AND PROFILE: STA 28+00 TO 54+00
3-05	PHASE 3 PLAN AND PROFILE: STA 54+00 TO 81+00
3-06	PHASE 3 PLAN AND PROFILE: STA 81+00 TO 108+00
3-07	PHASE 3 PLAN AND PROFILE: STA 108+00 TO 135+00
3-08	PHASE 3 PLAN AND PROFILE: STA 135+00 TO 163+00
3-09	PHASE 3 PLAN AND PROFILE: STA 163+00 TO 190+00
3-10	PHASE 3 PLAN AND PROFILE: STA 190+00 TO 217+00
3-11	PHASE 3 PLAN AND PROFILE: STA 217+00 TO 240+00
3-12	PHASE 3 PLAN AND PROFILE: STA 240+00 TO 259+10
3-13	PHASE 3 MONUMENT, CULVERT & RIPRAP DETAILS
4-01	PHASE 4 COVER SHEET
4-02	PHASE 4 COVER-ALL PLAN W/ NOTES, TABLE & DETAILS
4-03	PHASE 4 PLAN AND PROFILE: STA 0+00 TO 27+00
4-04	PHASE 4 PLAN AND PROFILE: STA 27+00 TO 54+00
4-05	PHASE 4 PLAN AND PROFILE: STA 54+00 TO 82+00
4-06	PHASE 4 PLAN AND PROFILE: STA 82+00 TO 110+00
4-07	PHASE 4 PLAN AND PROFILE: STA 110+00 TO 137+00
4-08	PHASE 4 PLAN AND PROFILE: STA 137+00 TO 164+00
4-09	PHASE 4 PLAN AND PROFILE: STA 164+00 TO 192+00
4-10	PHASE 4 PLAN AND PROFILE: STA 192+00 TO 220+00
4-11	PHASE 4 PLAN AND PROFILE: STA 220+00 TO 246+34
4-12	PHASE 4 MONUMENT, CULVERT & RIPRAP DETAILS



LEGEND



BURNHAM ROAD KEY MAP

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Location:
Date: 2025.03.31 15:49:48-0800

DATE	2025.03.31
BY	SHAWN T. SMITH
FOR	NAVAJO TRANSITIONAL ENERGY COMPANY

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EXHIBIT 40.6-1
SHEET 14 OF 25



Navajo Mine
PHASE 4
BURNHAM ROAD RE-ROUTE

COVER SHEET W/ VICINITY MAP & SHEET INDEX

Prepared By: PAR	Drawn By: PAR	Scale: As Noted
Reviewed By:	Date: 2025-09-23	File Date: 9/23/25
Project: 254-1476	Sheet: 14	
Project: 254-1476	Project: 254-1476	PH-4-1

PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION

PHASE 4 - BURNHAM ROAD RE-ROUTE

OBJECT MARKER TABLE

STATION	LOCATION	QUANTITY
46+75	RT & LT	2
65+15	RT & LT	2
189+00	RT & LT	2
206+65	RT & LT	2
233+70	RT & LT	2

OBJECT MARKER NOTES:
 -TYPE 2 A3/A3 OBJECT MARKERS SHALL BE PLACED ON THE SIDE OF THE ROAD JUST BEFORE ALL CULVERTS AND OTHER OBSTACLES ADJACENT TO THE ROADWAY.
 -OBJECT MARKERS AND THEIR PLACEMENT SHALL COMPLY WITH NMDOT STD. DWG. 703-01, SHEETS 1-3.
 -THE STATIONS GIVEN ON THIS TABLE ARE APPROX. AND SHALL BE MODIFIED AS NEEDED TO FIT THE SITE CONDITIONS.

PHASE 4 - BURNHAM ROAD RE-ROUTE - SIGN TABLE

STA.	SIDE / DIRECTION	SIZE (IN)	SIGN CODE	SIGN AREA (SF)	POST LENGTH (FT)	POST BASE (FT)
0+00	RT / NBL	36 x 36	W1-2R (CURVE RIGHT)	9	13.5	3.5
2+00	RT / NBL	36 x 36	W11-4 (CATTLE CROSSING)	9	13.5	3.5
13+00	RT / NBL	24 x 30	R2-1-35 (35 MPH)	5	12	3.5
13+50	LT / SBL	36 x 36	W1-2L (CURVE LEFT)	9	13.5	3.5
43+50	RT / NBL	36 x 36	W1-2R (CURVE LEFT)	9	13.5	3.5
53+00	LT / SBL	36 x 36	W1-2R (CURVE RIGHT)	9	13.5	3.5
134+00	RT / NBL	36 x 36	W1-2L (CURVE LEFT)	9	13.5	3.5
145+00	LT / SBL	36 x 36	W1-2R (CURVE RIGHT)	9	13.5	3.5
225+50	LT / SBL	24 x 30	R2-1-35 (35 MPH)	5	12	3.5
225+50	RT / NBL	36 x 36	W11-4 (CATTLE CROSSING)	9	13.5	3.5
244+50	LT / SBL	36 x 36	W11-4 (CATTLE CROSSING)	9	13.5	3.5
246+34	LT / SBL	36 x 36	W1-2L (CURVE LEFT)	9	13.5	3.5
TOTAL				100	159	42

SIGN NOTES:
 -ALL SIGNS AND POSTS SHALL COMPLY WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
 -ALL SIGNS MUST BE EQUIPPED WITH A BREAK-AWAY BASE.
 -ALL SIGNS SHALL BE LOCATED IN ACCORDANCE AS SHOWN ON THE PLAN AND IN ACCORDANCE WITH MUTCD.

PHASE 4 - BURNHAM ROAD RE-ROUTE BENCHMARK TABLE

BENCHMARK No.	NORTHING	EASTING	ELEVATION
BM-1	1,691,400	303,400	5,532.2
BM-2	1,961,400	305,900	5,497.6
BM-3	1,962,800	306,900	5,500.3
BM-4	1,965,300	307,100	5,516.6
BM-5	1,967,800	307,100	5,527.0
BM-6	1,970,500	307,100	5,517.6
BM-7	1,971,000	304,800	5,502.7
BM-8	1,972,000	303,000	5,485.7
BM-9	1,973,800	300,600	5,475.9
BM-10	1,975,900	299,400	5,456.2

BENCHMARKS ARE PROPOSED CONTROL POINTS TO BE USED FOR FUTURE CONSTRUCTION.
 THE BENCHMARKS SHOULD BE LOCATED ON ACCESSIBLE TOPOGRAPHIC HIGH POINTS ADJACENT TO THE PROJECT ALIGNMENT AND OUTSIDE THE PLANNED DISTURBANCE AREA.
 BENCHMARKS ARE PROVIDED AT APPROXIMATELY EVERY HALF-MILE ALONG THE ALIGNMENT.

PHASE 4 - BURNHAM ROAD RE-ROUTE MONUMENT TABLE

BENCHMARK No.	NORTHING	EASTING	ELEVATION
M-1	1,960,578.34	302,850.57	5,533.7
M-2	1,961,280.82	303,348.19	5,532.1
M-3	1,961,257.35	306,413.92	5,493.7
M-4	1,961,878.48	307,044.30	5,439.8
M-5	1,970,210.43	307,029.59	5,517.5
M-6	1,970,688.30	306,505.56	5,513.3
M-7	1,970,851.42	306,271.27	5,511.2
M-8	1,970,544.90	304,008.36	5,493.2
M-9	1,972,394.15	302,587.65	5,484.3
M-10	1,972,262.00	301,931.38	5,486.0
M-11	1,974,809.30	299,511.26	5,462.6
M-12	1,976,226.83	299,907.52	5,476.6

MONUMENTS ARE TO BE PROVIDED 50 FEET RIGHT OF THE CENTERLINE AT ALL PC'S AND PT'S.
 ALL MONUMENTS SHALL INCLUDE AN ACCOMPANYING REFERENCE MARKER.
 INSTALL MONUMENT AND REFERENCE MARKERS IN ACCORDANCE WITH THE MONUMENT AND REFERENCE MARKER DETAIL ON SHEET 3-13

PHASE 4 - BURNHAM ROAD RE-ROUTE GUARD RAIL TABLE

BEGINNING STATION	ENDING STATION	ITEM	LENGTH	RT OR LT OF CL
42+75.0	43+12.5	TL-2 END TREATMENT	37.5	RT
43+12.5	50+62.5	W-BEAM	750	RT
50+62.5	51+00.0	TL-2 END TREATMENT	37.5	RT
227+00.0	227+37.5	TL-2 END TREATMENT	37.5	LT
227+37.5	238+62.5	W-BEAM	1125	LT
238+62.5	239+00.0	TL-2 END TREATMENT	37.5	LT
227+00.0	227+37.5	TL-2 END TREATMENT	37.5	RT
227+37.5	238+62.5	W-BEAM	1125	RT
238+62.5	239+00.0	TL-2 END TREATMENT	37.5	RT

GUARD RAIL NOTES:
 -PROVIDE AND PLACE GUARD RAIL IN ACCORDANCE WITH NMDOT STD. DWG. 606-GR31 SHEETS 1 - 20.

PHASE 4 - BURNHAM ROAD RE-ROUTE - LINE & CURVE TABLE

LINE	LENGTH	BEARING	START POINT		END POINT		CURVE	LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
			NORTH	EAST	NORTH	EAST						
L1	100.00	N 20°06'33" W	1,960,467.25	302,838.00	1,960,561.15	302,803.62	C1	1109.98	575	110°36'14" RT	N 35°11'34" E	945.49
L2	305.93	S 89°30'19" E	1,960,333.82	303,348.54	1,961,307.35	306,414.35	C2	904.63	575	90°08'31" LT	N 45°25'25" E	814.18
L3	8332.10	N 00°21'10" E	1,963,878.79	306,994.30	1,970,210.74	307,045.59	C3	874.57	575	87°08'47" LT	N 43°13'14" W	792.67
L4	234.66	N 86°47'37" W	1,970,788.38	306,502.76	1,970,801.50	306,268.47	C4	2414.07	5000	27°39'48" RT	N 72°57'43" W	2390.69
L5	1655.18	N 59°07'50" W	1,971,501.98	303,982.70	1,972,351.23	302,562.00	C5	815.6	5000	09°20'46" RT	N 54°27'27" W	814.7
L6	3169.27	N 49°47'04" W	1,972,824.82	301,899.09	1,974,871.11	299,478.98	C6	1857.69	800	133°02'50" RT	N 16°44'21" E	1467.56
L7	100.32	N 83°15'46" E	1,976,276.49	299,901.66	1,976,288.25	300,001.28						

PHASE 4 - BURNHAM ROAD RE-ROUTE - SUPERELEVATION TABLE

CURVE	SUPER(E)	BEGIN TRANSITION		ADVERSE CROWN		REVERSE CROWN		BEGIN FULL	END FULL	ADVERSE CROWN		END TRANSITION
C1	6%	0+00		0+75	1+50	2+25	10+87	12+73		13+66	14+59	
C2	6%	40+26	41+19	42+13	43+99	50+58	52+44	53+37	54+30			
C3	6%	132+63	133+56	134+49	136+36	142+64	144+51	146+20	146+70			
C4	2%	146+70	146+20	146+63	146+63	169+74	170+68	171+61				
C5	2%	186+66	186+66	187+63	187+63	194+45	194+45	195+38	196+31			
C6	5.5%	224+45	225+38	226+31	227+90	244+20	245+78	246+71	247+64			

SUPERELEVATION NOTES:
 -PROVIDE SUPERELEVATION IN ACCORDANCE WITH THE PLANS AND NMDOT STD. DWG. 803-01 SHEETS 1-4.



PHASE 4 - BURNHAM ROAD RE-ROUTE - CULVERT TABLE

CULVERT No.	STATION	LENGTH (LF)	SIZE (INCHES)	CORRUGATION (INCHES)	MINIMUM COVER (INCHES)	SLOPE (%)	INVERT IN (ELEV.)	INVERT OUT (ELEV.)	SKREW (DEG.)	END TREATMENT INLET	END TREATMENT OUTLET
4-5	46+75	76	(1) 30"	2-2/3 X 1/2	12"	1.0	5479.7	5478.9	0	FES	FES
4-4	65+15	82	(1) 60"	5 X 1	12"	1.0	5486.7	5485.9	20	FES	FES
4-3	189+00	95	(3) 42"	2-2/3 X 1/2	12"	1.0	5483.7	5482.7	0	MULTI-FES	MULTI-FES
4-2	206+65	95	(3) 36"	2-2/3 X 1/2	12"	1.0	5476.6	5475.8	0	MULTI-FES	MULTI-FES
4-1	233+70	82	(5) 48"	2-2/3 X 1/2	12"	1.0	5455.1	5454.2	20	CONCRETE BLANKET	CONCRETE BLANKET

CULVERT NOTES:
 -ALL CULVERTS SHALL BE GALVANIZED 16 GA. STEEL CORROGATED METAL PIPE (CMP).
 -ALL CULVERTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND NMDOT REQUIREMENTS.
 -ALL CULVERTS SHALL HAVE THE SPECIFIED END TREATMENTS;
 -"FES" INDICATED FLARED END SECTION. PROVIDE FES MATCHING THE PIPE SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
 -"MULTI-FES" INDICATES MULTIPLE INLET FLARED END SECTION. PROVIDE MULTI-FES MATCHING THE PIPE SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
 -"CONCRETE BLANKET" INDICATED CONCRETE BLANKET IN ACCORDANCE WITH NMDOT STD DWG 511-12-1 AND 2

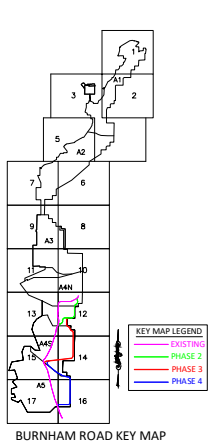
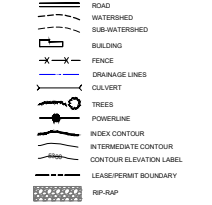
PHASE 4 - BURNHAM ROAD RE-ROUTE - RIPRAP TABLE

CULVERT No.	STATION	DISCHARGE	RIPRAP LENGTH	RIPRAP WIDTH	RIPRAP SIZE
4-5	46+75	26.11	25'	15'	6"
4-4	65+15	182.75	25'	20'	9"
4-3	189+00	154.03	25'	20'	9"
4-2	206+65	125.54	25'	20'	9"
4-1	233+70	453.84	75'	50'	12"

RIPRAP NOTES:
 -THE RIPRAP SHOWN IS FOR PERMIT APPLICATION PURPOSES. IT HAS NOT BEEN DESIGNED AT THIS TIME, BUT WILL NEED TO BE DESIGNED AND VERIFIED BEFORE CONSTRUCTION PLANS ARE ISSUED.
 -INSTALL RIPRAP IN ACCORDANCE WITH THE PIPE OUTLET RIPRAP DETAIL ON SHEET 4-12.
 -THE RIPRAP SIZE REFERS TO THE D50 SIZE.



LEGEND



ADDITIONAL MINE STRUCTURES INCLUDING, ROADS, RAILROADS, PONDS, IMPOUNDMENTS AND CULVERTS, ALTHOUGH PRESENT ON THIS EXHIBIT AS PART OF BASE MAPPING, ARE NOT INTENDED TO BE CURRENT OR ACCURATE ON THIS EXHIBIT. PLEASE REFER TO THE APPROPRIATE P.E.P. TEXT SECTION FOR A MINE STRUCTURE EXHIBIT REFERENCE.

CERTIFICATION STATEMENT
 I, Shawn T. Smith, hereby certify that this drawing was prepared by me and that the information shown is complete and accurate to the best of my knowledge.
 Digitally signed by Shawn Smith
 Reason: I have reviewed this document
 Location:
 Date: 2025.03.31 15:40:48-0700'

PERMIT APPLICATION PLANS
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 CONSTRUCTION DETAILS WILL BE ADDED BEFORE PLANS ARE ISSUED FOR CONSTRUCTION.

EXHIBIT 40.6-1
 SHEET 15 OF 25

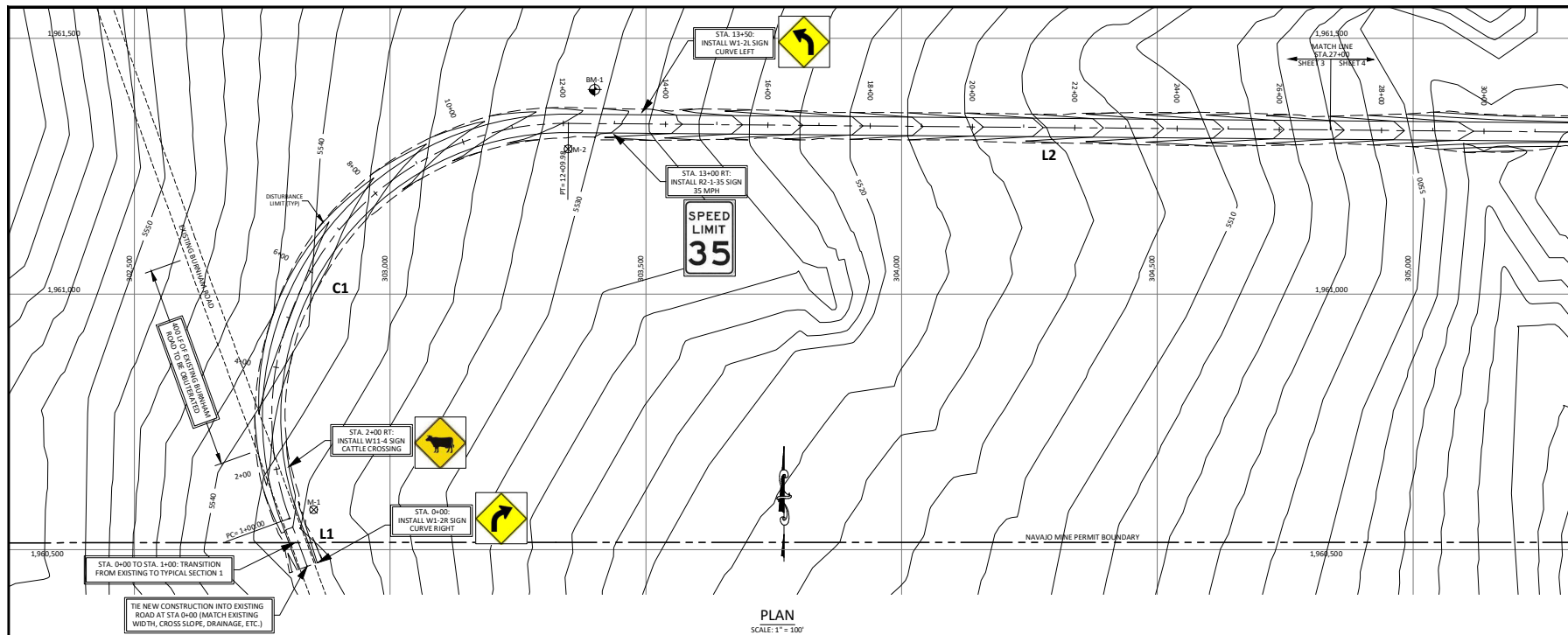


Navajo Mine
 PHASE 4
 BURNHAM ROAD RE-ROUTE

PROJECT OVERVIEW W/
 NOTES, TABLES & DETAILS

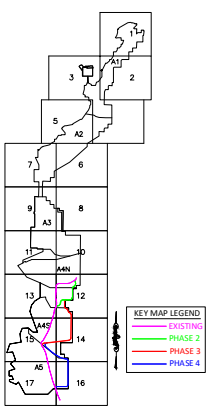
Prepared By: PAR Drawn By: PAR Scale: As Noted
 Approved By: [Signature] Date: 2025-09-23 File: 032525
 EXHIBIT Project: 254-5476 SHEET
 Navajo 2025-09-23 BURNHAM ROAD RE-ROUTE PH.4-2

PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION



LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RP-RAP



BURNHAM ROAD KEY MAP

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DATE	2025	DATE	2025
BY	PAR	BY	PAR
CHECKED	PAR	CHECKED	PAR
DATE	2025	DATE	2025
BY	PAR	BY	PAR

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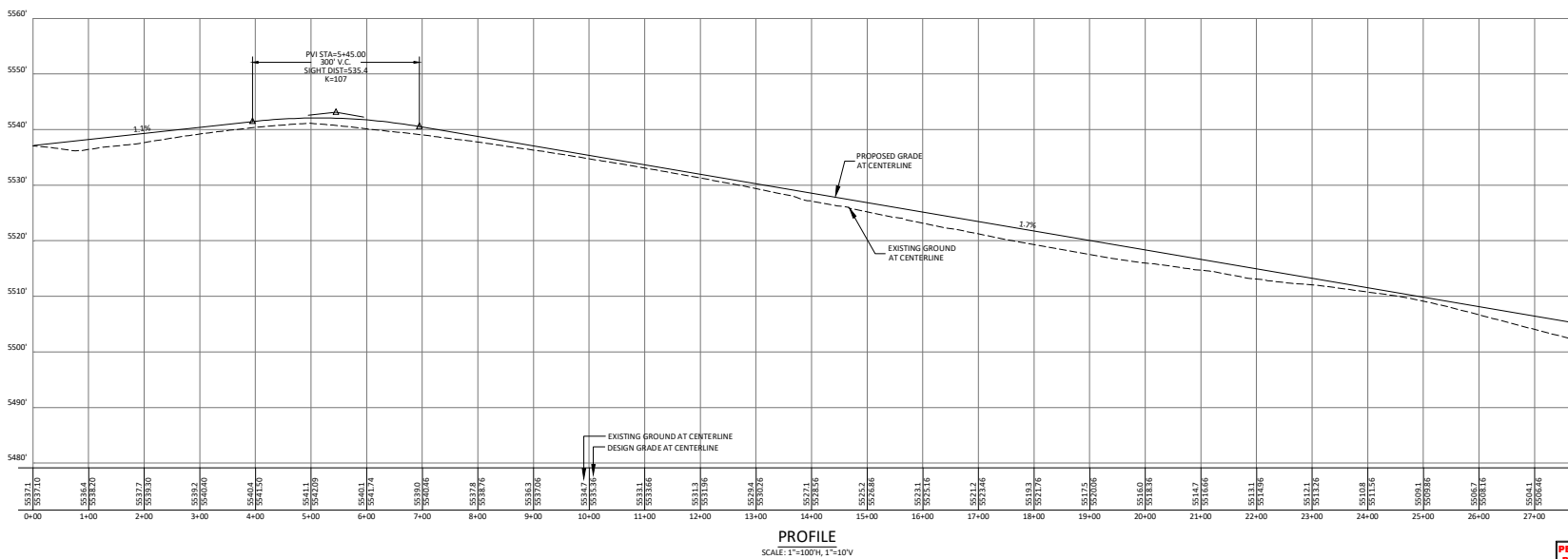
EXHIBIT 40.6-1 SHEET 16 OF 25

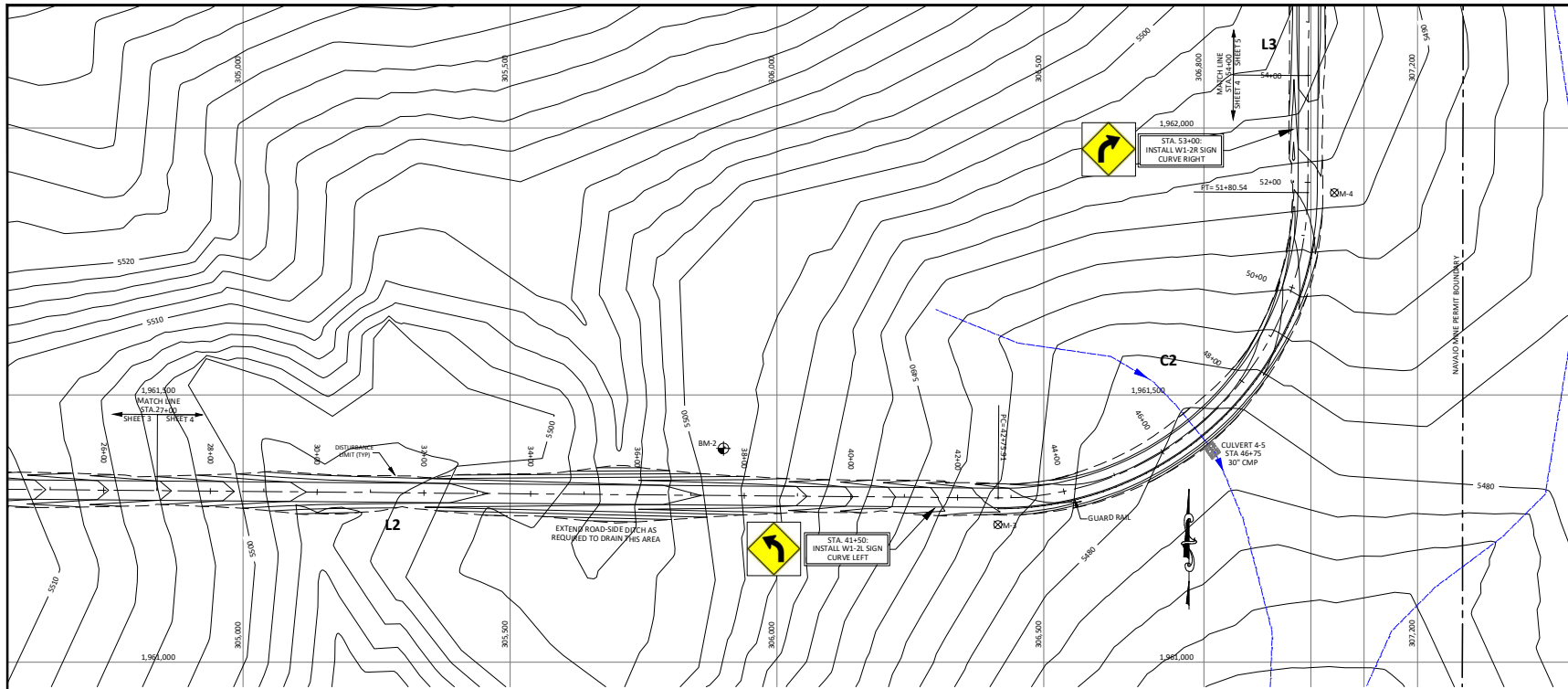


PLAN & PROFILE STA. 0+00 TO 28+00

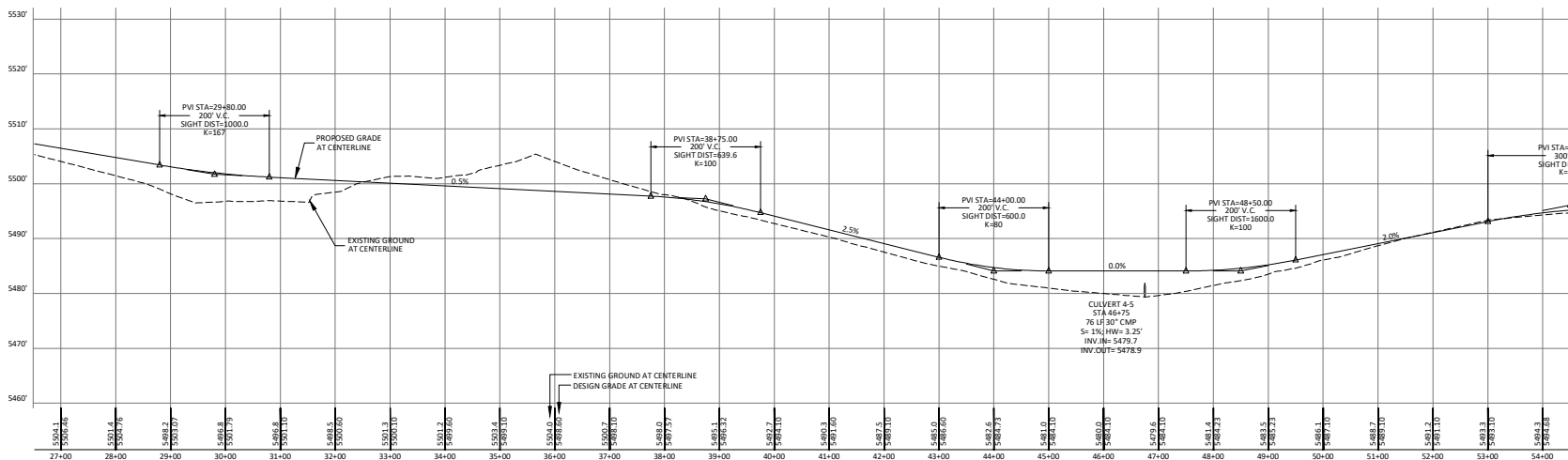
Prepared By: PAR
Reviewed By: PAR
Checked By: PAR
Date: 2025-09-23
Project: 254-5476
Drawing: 205-40-21 BURNHAM ROAD RE-ROUTE.dwg
Scale: As Noted
Sheet: 16 OF 25
PH-4-3

**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**





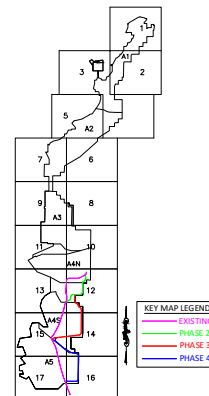
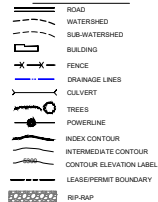
PLAN
SCALE: 1" = 100'



PROFILE
SCALE: 1" = 100' H, 1" = 10' V



LEGEND



BURNHAM ROAD KEY MAP

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NO.	DATE	BY	REVISIONS AND DESCRIPTION
1	03/31/25	PAR	PERMIT APPLICATION PLANS

PERMIT APPLICATION PLANS

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EXHIBIT 40.6-1 SHEET 17 OF 25

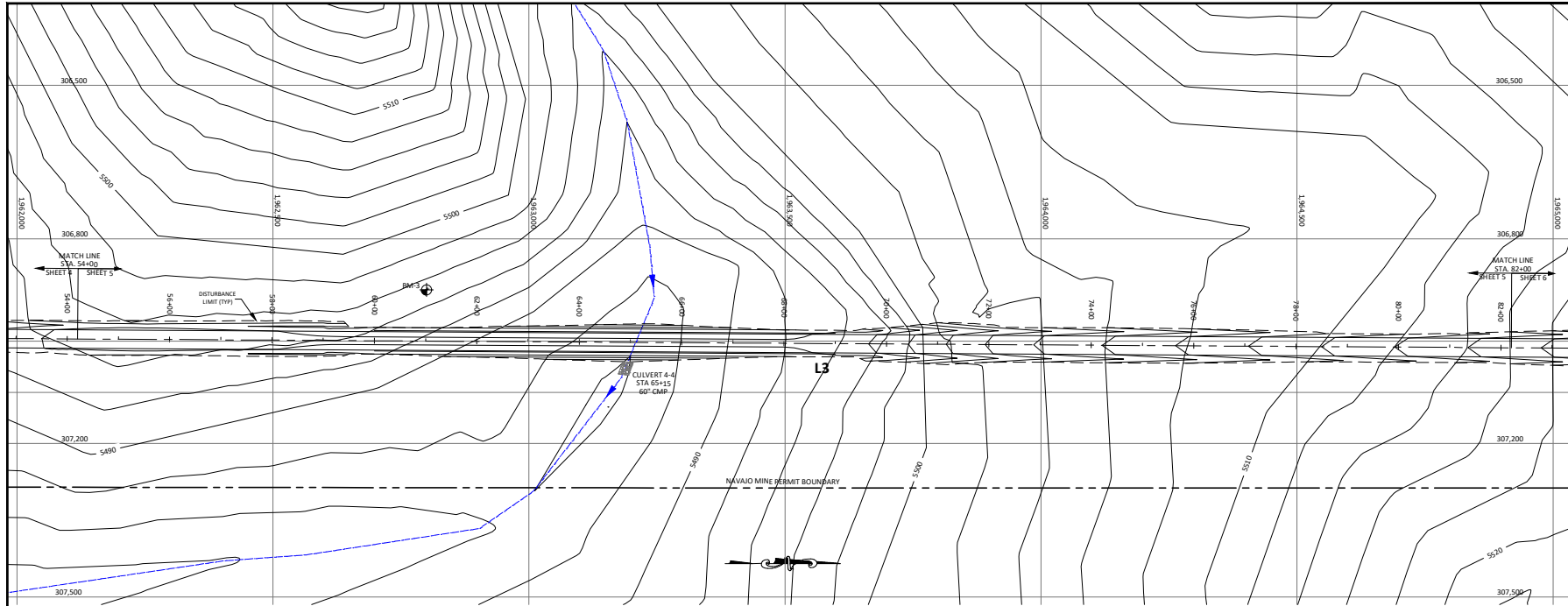


Navajo Mine PHASE 4 BURNHAM ROAD RE-ROUTE

PLAN & PROFILE STA. 28+00 TO 54+00

Prepared By: PAR
Drawn By: PAR
Date: 2025-09-23
Scale: As Noted
Reviewed By: PAR
Checked By: PAR
Project: 254-5476
Sheet: 17
Drawing: 254-B-11 BURNHAM ROAD RE-ROUTE.dwg
PH.4-4

PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION

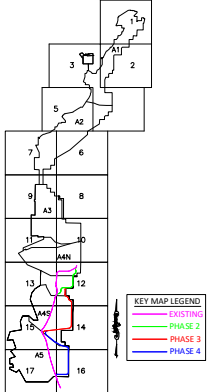


PLAN
SCALE: 1" = 100'



LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RP-RAP



BURNHAM ROAD KEY MAP

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NO.	DATE	BY	REVISION/DESCRIPTION

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EXHIBIT 40.6-1 SHEET 18 OF 25



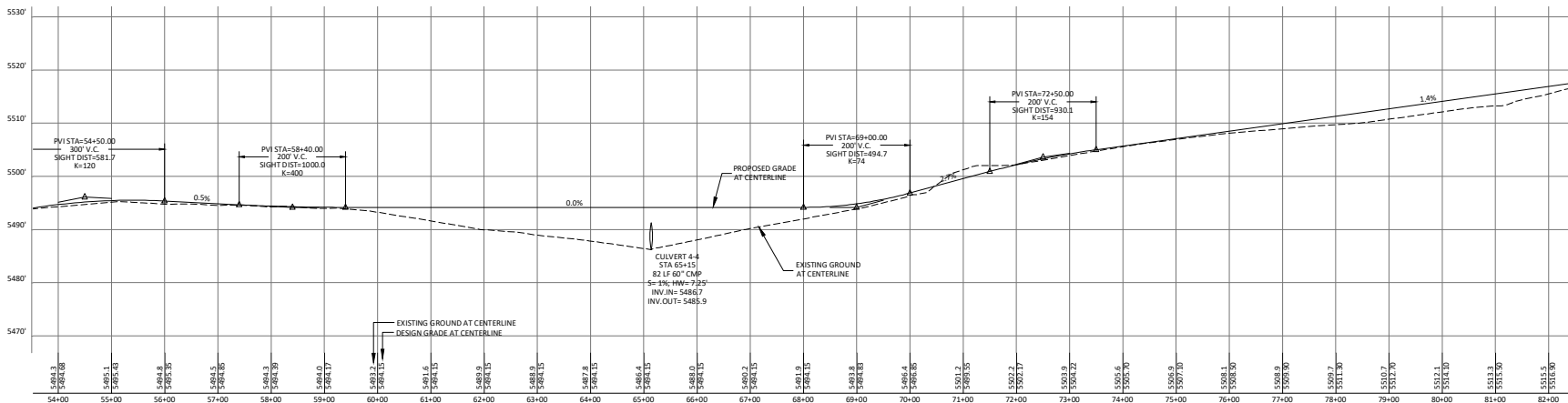
Navajo Mine PHASE 4 BURNHAM ROAD RE-ROUTE

PLAN & PROFILE STA. 54+00 TO 82+00

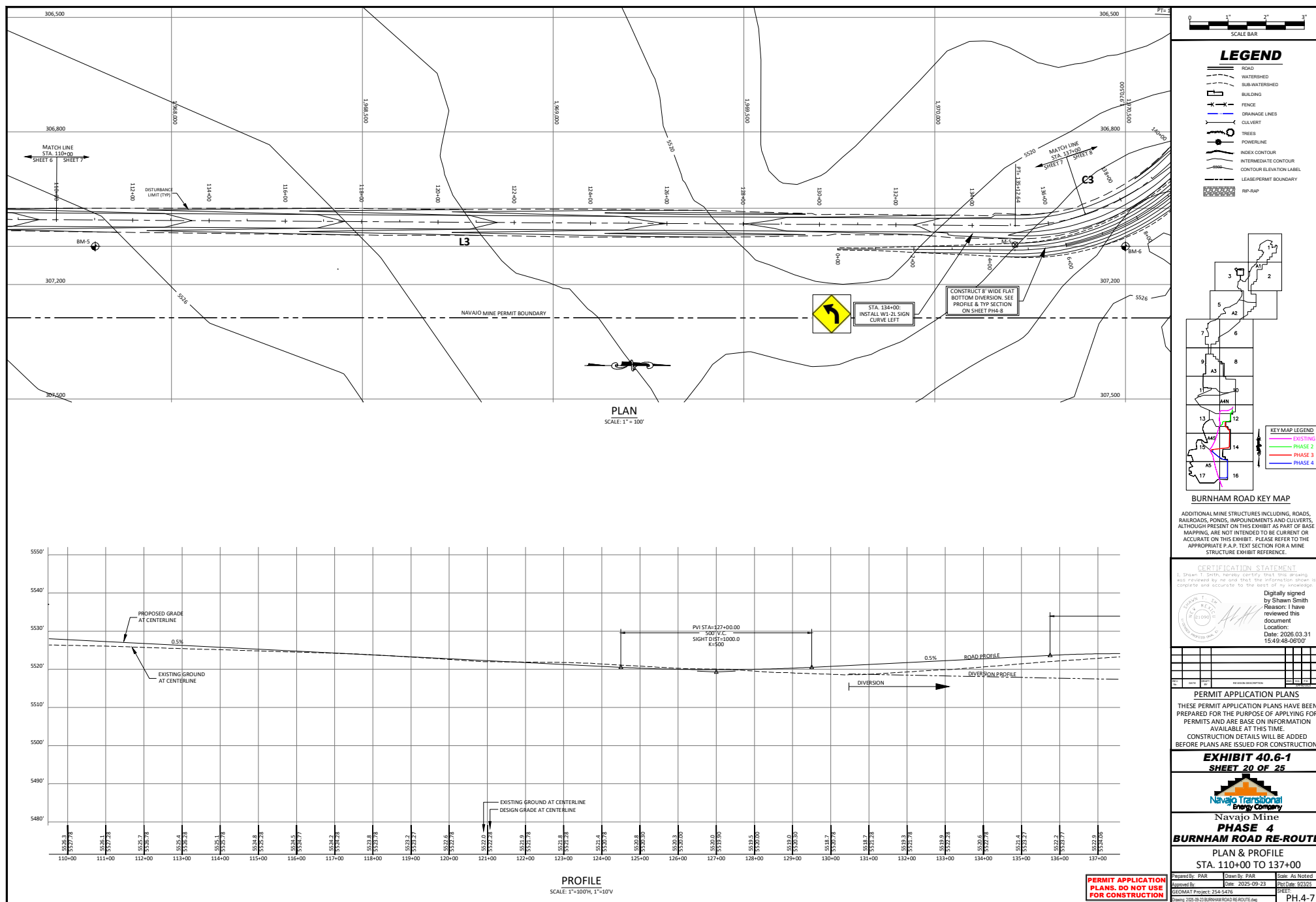
Prepared By: PAR Drawn By: PAR Scale: As Noted
Reviewed By: [Signature] Date: 2025-09-23 File: 2025-09-23
SHEET: 18
Schematic Project: 254-5476
Drawing: 2025-09-23 BURNHAM ROAD RE-ROUTE.dwg

**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**

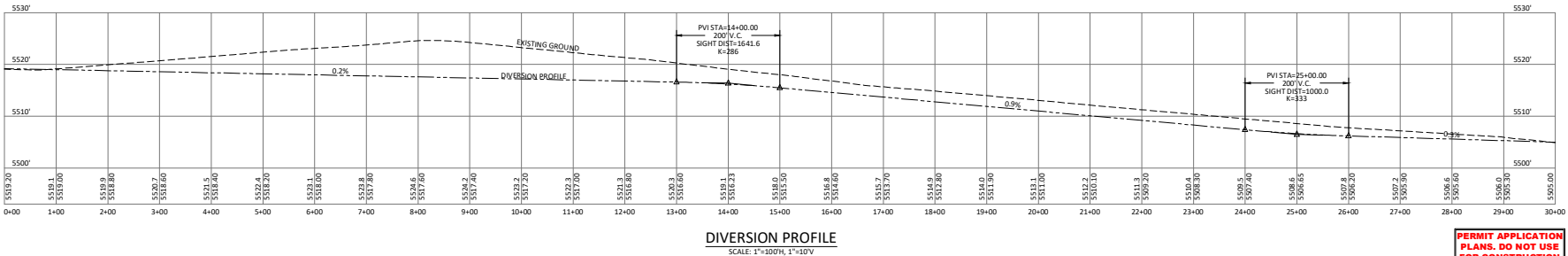
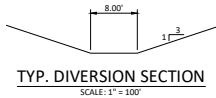
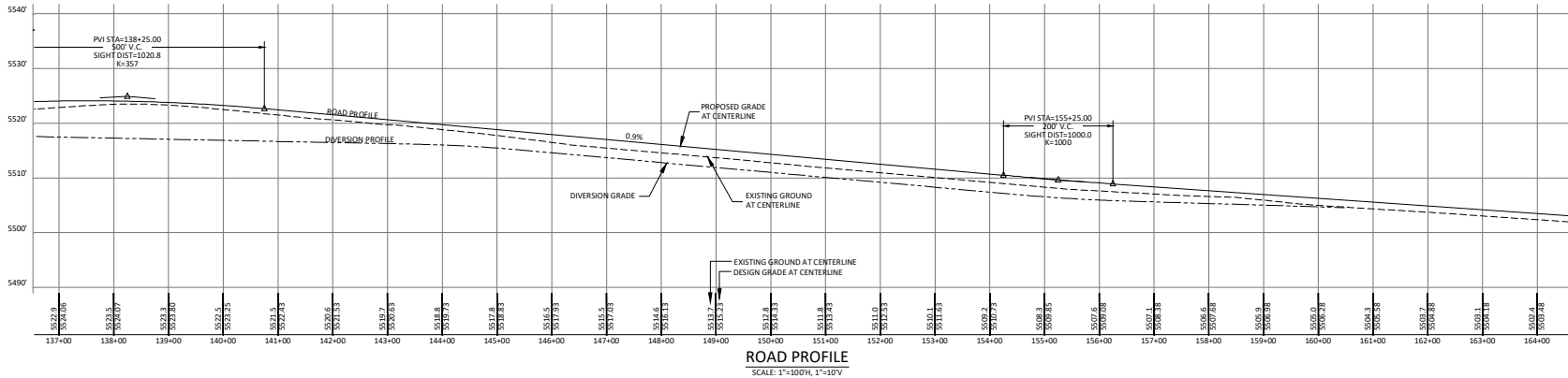
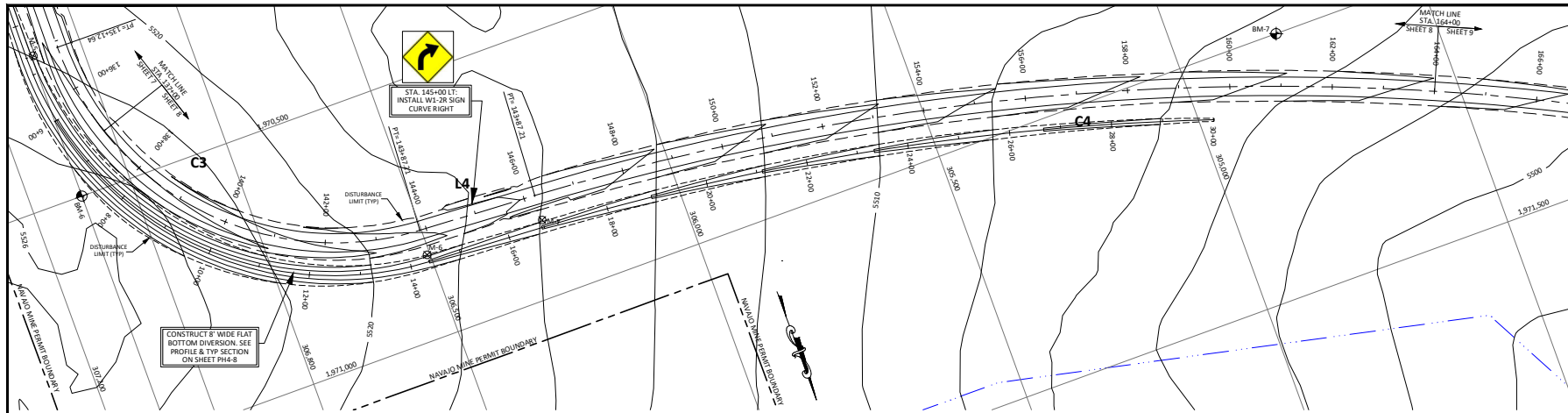
PH.4-5



PROFILE
SCALE: 1"=100', 1"=10' V

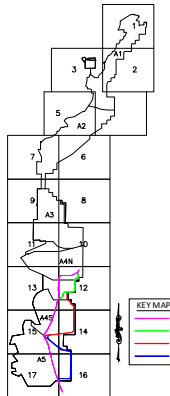


**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**



LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RP-RAP



BURNHAM ROAD KEY MAP

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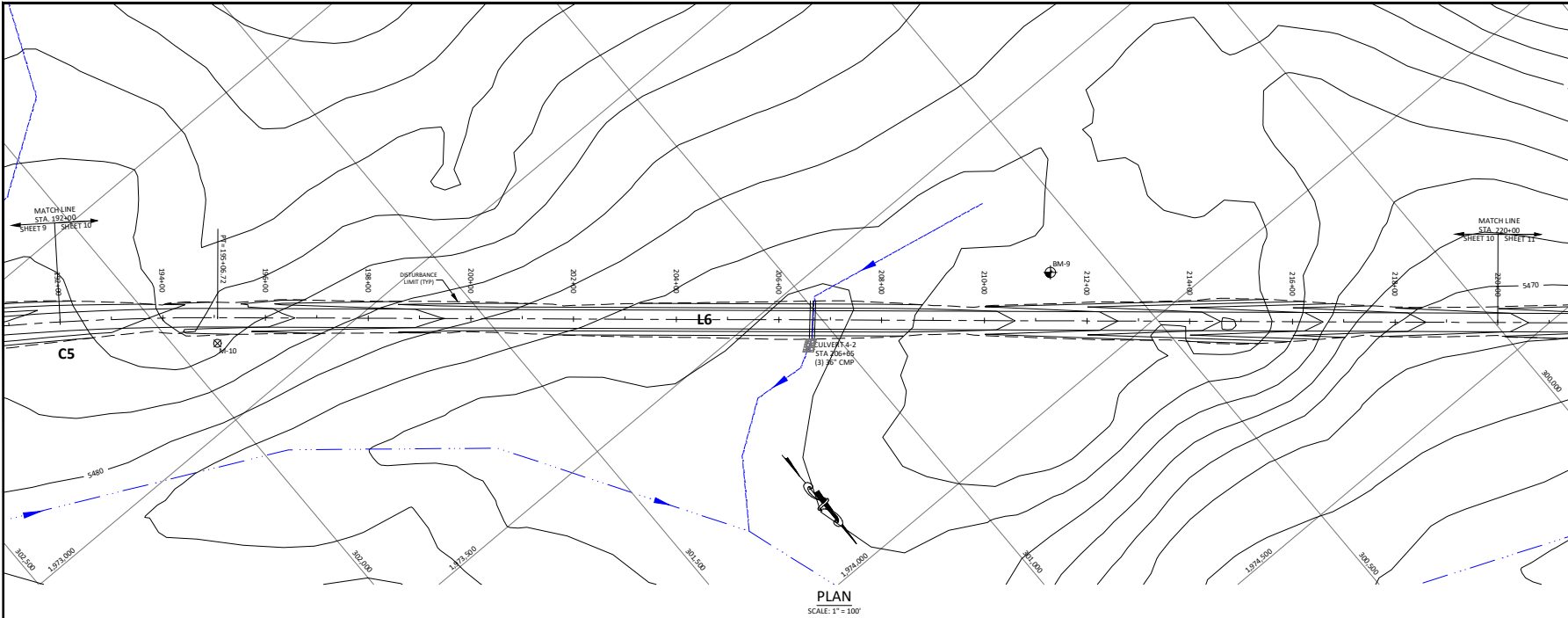
EXHIBIT 40.6-1 SHEET 21 OF 25

Navajo Transitional Energy Company
Navajo Mine
PHASE 4
BURNHAM ROAD RE-ROUTE

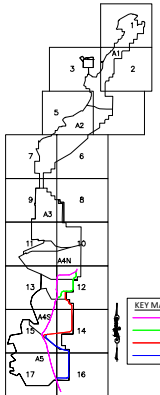
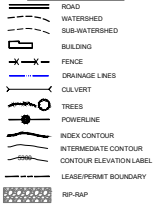
PLAN & PROFILE STA. 137+00 TO 164+00

Prepared By: PAR Drawn By: PAR Scale: As Noted
Reviewed By: [Signature] Date: 2025-09-23 Project No: B2328
AUTOMAT Project: 254-5476
Drawing: 205-40.6-1 BURNHAM ROAD RE-ROUTE.dwg
SHEET: **PH.4-8**

**PERMIT APPLICATION
PLANS. DO NOT USE
FOR CONSTRUCTION**



LEGEND



BURNHAM ROAD KEY MAP

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Reason: I have reviewed this document
Location:
Date: 2025.03.31 15:40:48-0700'

NO.	DATE	REVISIONS
1	03/31/25	ISSUED FOR PERMIT

PERMIT APPLICATION PLANS

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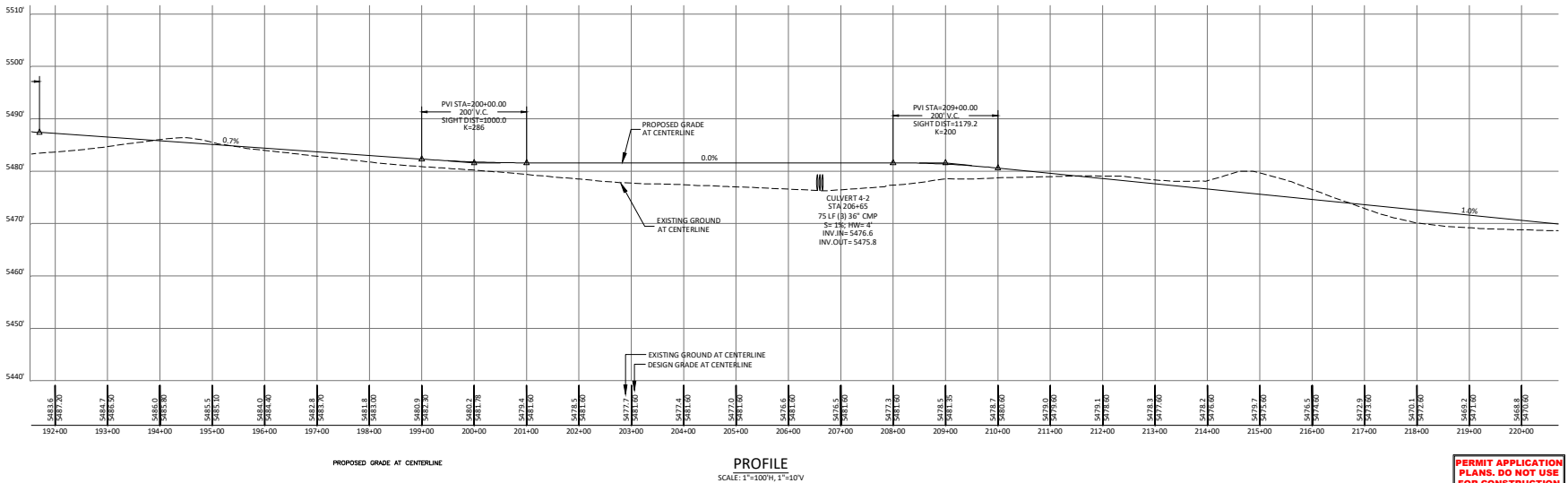
EXHIBIT 40.6-1 SHEET 23 OF 25

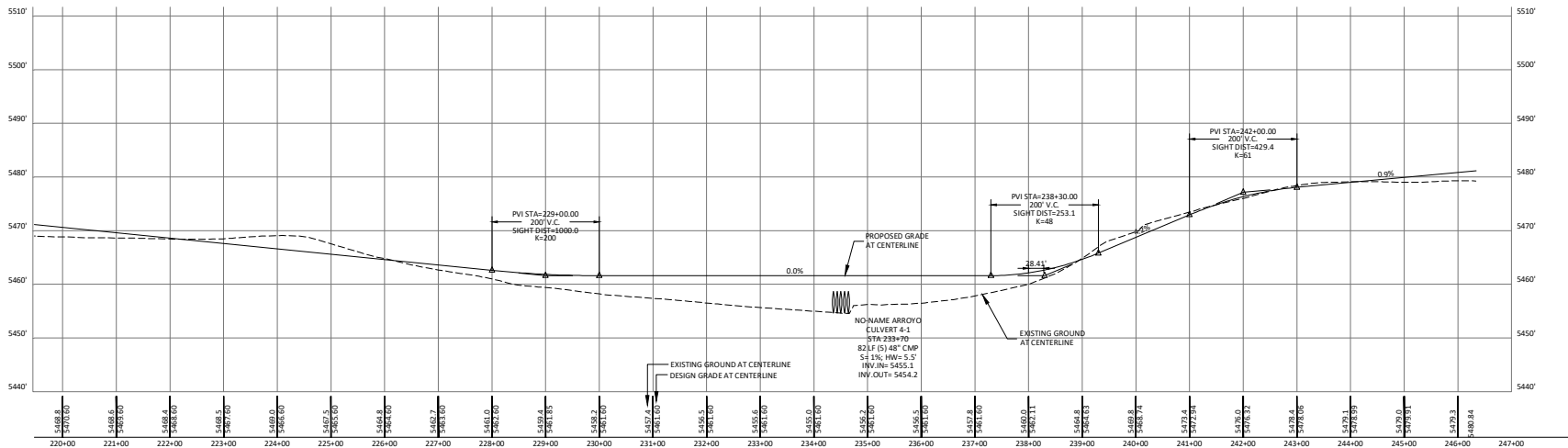
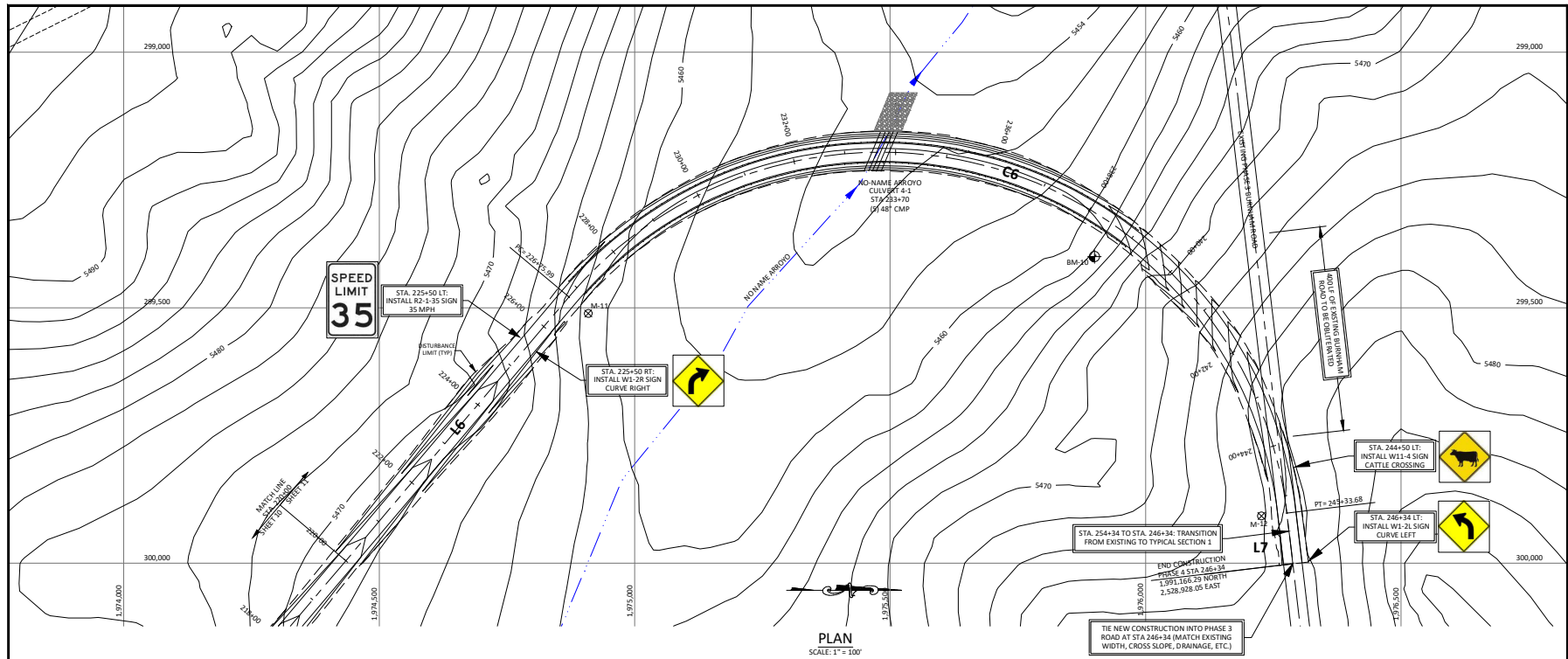
Navajo Transitional Energy Company
Navajo Mine
PHASE 4
BURNHAM ROAD RE-ROUTE

PLAN & PROFILE STA. 192+00 TO 220+00

Prepared By: PAR Drawn By: PAR Scale: As Noted
Reviewed By: Date: 2025-09-23 Plot Date: 2025-09-23
ALOMAT Project: 214-5476 SHEET: PH.4-10
Drawn: 2025-09-23 BURNHAM ROAD RE-ROUTE.dwg

PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION





LEGEND

- ROAD
- WATERSHED
- SUB-WATERSHED
- BUILDING
- FENCE
- DRAINAGE LINES
- CULVERT
- TREES
- POWERLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CONTOUR ELEVATION LABEL
- LEASE/PERMIT BOUNDARY
- RIP-RAP

BURNHAM ROAD KEY MAP

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EXHIBIT 40.6-1
SHEET 24 OF 25

Navajo Mine
PHASE 4
BURNHAM ROAD RE-ROUTE

PLAN & PROFILE
STA. 220+00 TO 246+34

Prepared By: PAR
Drawn By: PAR
Scale: As Noted
Date: 2025-09-23
PVI Date: 9/23/25
SHEET: PH.4-11

PERMIT APPLICATION PLANS. DO NOT USE FOR CONSTRUCTION

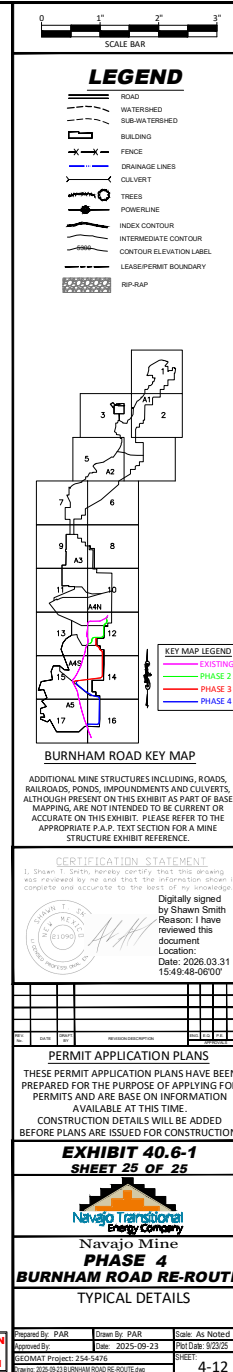
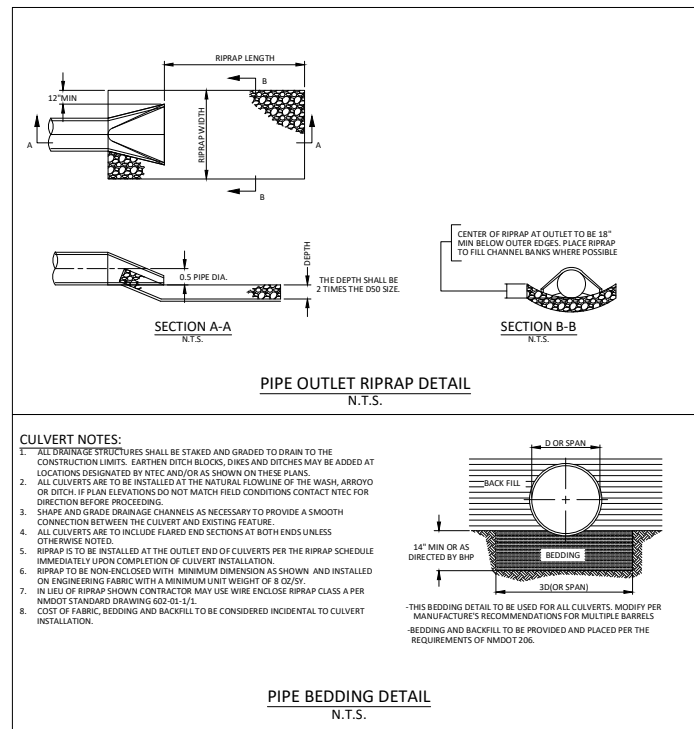
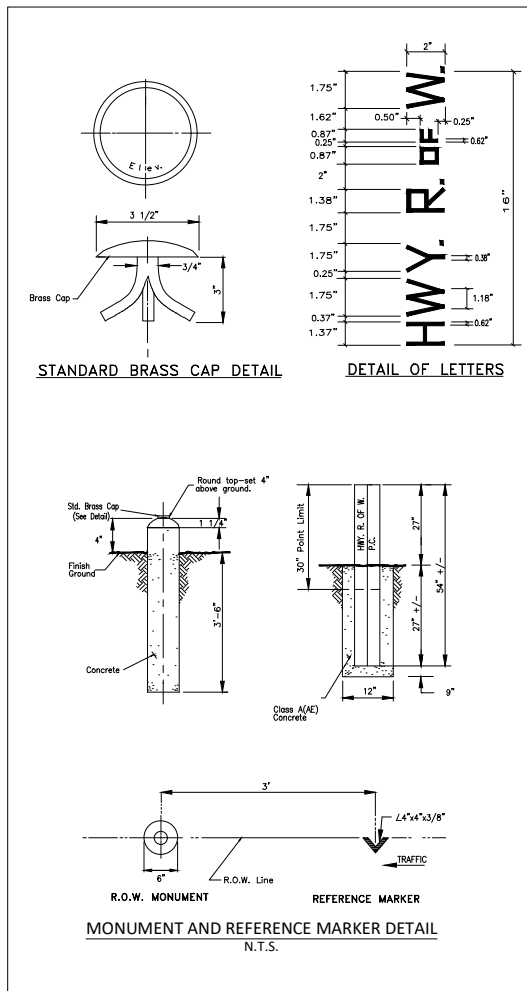


Table 40.6-1 Burnham Road South Geometric Design Data

Average daily traffic	1,200 vehicles
Maximum superelevation	6%
Maximum gradient	6%
Minimum stopping distance	305 ft
Design speed limit	40 mph
Posted speed limit	35 mph

Table 40.8-1 Fugitive Dust Control Measures

	Control measure	Fugitive dust categories		
		Road	Coal	Mining
1.	Unpaved haulroads and ancillary roads are watered with water trucks as needed to suppress dust.	D ¹	I	I ¹
2.	Heavily traveled portions of unpaved primary roads may be stabilized with chemical suppressants, or watered as needed to suppress dust.	D ¹	-	-
3.	Haulroads are graded as necessary during hauling operations.	D ¹	I	I ¹
4.	High-use routes of travel in mining areas are graded as necessary.	D ¹	-	I ¹
5.	Maximum vehicle speed on paved and unpaved mine roads is limited to 45 mph within the permit area for all mine vehicles.	D ¹	I	I ¹
6.	Travel of unauthorized vehicles on other than established roads is restricted.	D ¹	-	I ¹
7.	The area of disturbed land is minimized. This includes the number and size of areas to be blasted at any one time.	I	-	D
8.	Curtains are installed around the drill stems on overburden drills. Water sprays and/or vacuum dust suppression systems are used to help suppress fugitive dust emissions when drilling overburden material.	-	-	D
9.	Regular inspections for coal fires are made throughout the mine area. If a coal fire ignites by spontaneous combustion, that portion of the coal is separated or buried to extinguish the fire where possible.	-	-	D
10.	The area accessible by vehicles around the coal plant is watered as needed to suppress dust.	-	D ¹	-
11.	Coal placed at the field coal stockpiles is smoothed and compacted as necessary. Compaction of the coal reduces spontaneous fires and fugitive dust, and allows the coal trucks to operate on the stockpile as needed.	I	-	D
12.	Dust control during construction of a soil stockpile (topdressing stockpile) is done as needed by spraying the working area with water from a water truck. Inactive stockpiles will be seeded as described in Section 22.9.	-	-	D
13.	Haulage vehicles are inspected regularly for proper function, which includes inspection of the haulage vehicle container body and if necessary, repairs are conducted as soon as practicable.	I ¹	I	I ¹
14.	Water sprayers are installed in surface miners to minimize dust as the machine operates in the pit.	I	D	D
15.	Trees may be planted in an effort to suppress flow of dust during high wind events.	I	I	-

	Control measure	Fugitive dust categories		
		Road	Coal	Mining
16.	Vegetation is established through irrigation on reclaimed lands for two years as the final surface grade has been achieved and topsoil spread.	I	-	-
17.	Water and specialized agents are added to coal as it is discharged from coal cars into hoppers.	-	D	-
18.	Water and specialized agents are added to coal in the crushers.	-	D	-

D Direct impact by control measure on appropriate fugitive dust category.

I Indirect impact by control measure on appropriate fugitive dust category.

¹ Control measure used for coal combustion by-product fugitive dust.