BRITISH COLUMBIA MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE

CYCLE 16 PROJECT – PHASE 2

CONCEPTUAL DESIGN REPORT

PREPARED BY:
WSP

JULY 2021

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BRITISH COLUMBIA MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE

CONTRACT NO.: 872CS1659
WSP PROJECT NO.: 201-11400-01
DATE: JULY 15, 2021

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INTRODUCTION

The BC Ministry of Transportation and Infrastructure (MoTI), commissioned WSP Canada Group Limited (WSP) to provide engineering services to develop a conceptual design for Phase 2 of the Cycle 16 Trail Project. The conceptual design consists of two different route options, each with an alternate method and location for crossing the highway. The conceptual design included a detailed look at both highway crossing options, the trail routes associated with each option, as well as a final section of trail which is common for both highway crossing methods.

The goal of this work was to meet following three primary objectives:

1. Development of a conceptual level design for each trail route and highway crossing option to allow for informed discussions amongst stakeholders on what option is most desirable and achievable for the project and to provide enough information for stakeholders to be comfortable selecting the preferred route.
2. Provide enough detail to allow stakeholders to proceed with ROW acquisition for the preferred route and commence with respective applications through the agricultural land commission (ALC).
3. Development of a conceptual level design and respective construction cost estimate that presents a high level of pre-planning for the second Phase of the Cycle 16 project which allow stakeholders to apply for future grant and fundraising opportunities.

To summarize the conceptual designs completed and to meet the objectives outlined above, WSP has prepared this report in order to outline all findings and inform stakeholders on the

- Location & Description
- Design Inputs
- Design Criteria
- Pathway Design Summary for Each Trail Route
    - General Alignment
    - Highway Crossing
    - Adjacent Properties
    - Right-Of-Ways
    - Notable Design Considerations
    - Utilities
    - Probable Cost
- Options Study Summary
- Next Steps

LOCATION AND DESCRIPTION

Phase 2 of the Cycle 16 trail begins at the end of Phase 1 located off of the Laidlaw Frontage Road which is on the opposite side of the highway to Babine Lake Road, near Smithers, BC. From that point, the trail continues South towards Telkwa for approximately 3.5km, taking one of two possible routes for the first half, and converging to one final segment of trail for the second half. The trail ends at the existing highway pullout on the North side of the highway halfway between Raymond Road and Donaldson Road. A location map indicating the trail route for Phase 2 is shown below in Figure 1.

Figure 1: Cycle 16 Phase 2 Trail Route

DESIGN INPUTS

WSP was provided the following sources from the Ministry and the Cycle 16 Trail society for use in the of data as inputs to the Cycle 16 Phase 2 Conceptual Design;

- 2007 McElhanney Topo Survey
- 2012 McElhanney LIDAR
- 2017 & 2018 McElhanney Concept Designs
- 2018 Legal linework

In addition to the above noted data sets, WSP purchased ORTHO imagery from McElhanney for use in the conceptual designs and used design information such as typical cross sections and Civil 3D design assemblies that were developed during the process of the Cycle 16 Phase 1 detailed design.

DESIGN CRITERIA

WSP used the following design criteria as a basis for the development of the Phase 2 Conceptual Design.

- British Columbia Active Transportation Design Guide This is a free resource, published by the B.C. Government
- Bikeway Traffic Control Guidelines for Canada (2nd Edition), Transportation Association of Canada (TAC)
- Guidelines for the Development of Bicycle Facilities (4th Edition), American Association of State Highway and Transportation Officials

The trail has been designed to match the same design standards as Phase 1 of the Cycle 16 trail which meet all active transportation design guidelines for a multi-use pathway. The main design criteria have been summarized below in Table 1.

Table 1: Phase 2 Design Criteria

ELEMENT	DESIGN CRITERIA
Traffic Type	Pedestrians & Cyclists
Trial Width	3.0 m
Shoulder Width	0.5 m
Surface Type	Asphalt Pavement
Cut / Fill Slopes	2H : 1V
Offset to Hydro Poles	3.0m
Offset to Hydro Anchors	0.6m
Maximum Vertical Grade	7.0%
Minimum Vertical Grade	0.5%
Crossfall	2%
Minimum Horizontal Radius	20m
Minimum Offset to Highway	9.0m (Clear zone Requirement)

TRAIL OPTION 1

Trail Option 1 consists of a section of trail that is approximately 1685m in length and utilizes an overpass structure to cross Highway 16. The conceptual design drawings for this section of the trail can be found in **Appendix A1** at the end of this report. This route option has been analyzed in detail with the findings summarized below:

GENERAL ALIGNMENT

The alignment for Trail Option 1 starts at the Laidlaw Frontage Rd. on the West side of Highway 16 where Phase 1 of the Cycle 16 trail ends. The Trail Option 1 continues South towards Telkwa for approximately 200m where it crosses the highway via an overpass structure, then continues South within the Highway ROW along an old section of Highway for 400m. The trail re-joins the Highway 16 alignment and continues Southwest for 1,000m. From here, the trail starts to diverge from the highway, heading South for 50m to where it connects with the final common alignment segment of Phase 2.

Figure 2: Cycle 16 Phase 2 - Option 1 Trail Route

HIGHWAY CROSSING – OVERPASS

Trail Option 1 includes construction of a new 40m Pony Truss Bridge with a concrete deck on the proposed trail alignment. The superstructure consists of a prefabricated underhung type pony truss with a reinforced cast-in-place concrete deck. The superstructure is supported by elastomeric bearings on a reinforced cast-in-place concrete abutment. The abutment will be supported on a deep pile foundation. The superstructure features weathering steel which has the lowest cost to maintain. Standard horizontal railings would be provided on both sides of the bridge. Wingwalls and approach fills will provide transitions from existing grade up to the bridge will be provided at both ends of the structure. More information on the overpass crossing option can be found in the May 2021 Phase 2 Pedestrian Overpass Option Study Memo.

ADJACENT PROPERTIES

The Trail Option 1 crosses through, or beside the following properties:

- REM FRACTIONAL S.E. ¼ SEC. 17 TP (ROW Required)
- REM LOT C PLAN 6397

- LOT A PLAN 1299
- LOT 2 PLAN 4027
- LOT 1 PLAN 12791 (ROW Required*, Driveway Crossing)
- LOT 3 PLAN EPP60316 (ROW Required, Driveway Crossing)

*alternative means of avoiding ROW (see below)

RIGHT-OF-WAYS

Trail Option 1 requires a total of three right-of-way's, all of which are detailed below by the legal property description, approximate width and total size. For the purposes of this conceptual design, the size and width of each ROW have been approximated based on the minimum size of ROW required while maintaining the minimum 9.0m offset from the highway (clear-zone) and ensuring the full trail embankment falls within the proposed ROW. WSP notes that the final size and width of the ROW may vary based on other external factors from stakeholders such as; who will be the owner of the ROW, the reluctance of the property owner to grant the ROW, the ability to avoid utility conflicts, amongst other factors.

The ROW's required for Option 1 are:

- **ROW on REM FRACTIONAL S.E. ¼ SEC. 17 TP**
  - 12m by 80m, 0.096 ha
- **ROW on LOT 1 PLAN 12791**
  - 6m by 177m, 0.11 ha
  - Driveway Crossing Required
  - **ROW may be eliminated by pole relocation (see below)*
- **ROW on LOT 3 PLAN EPP60316**
  - 6m by 528m, 0.32 ha, & 12m by 72m, 0.086 ha
  - Driveway Crossing Required

NOTABLE DESIGN CONSIDERAITONS

With each trail route option there are specific design considerations that are notable and are worth exploring in further detail. The following is a brief discussion of the notable design considerations that are specific to Option 1.

OVERPASS CROSSING ALIGNMENT

Two crossing alignments were explored during the conceptual design for the pedestrian overpass. The first crossing alignment utilized the minimum span length possible (40m) but required a ROW on the adjacent property. This is the alignment that is being used in this report as it has been deemed as the least expensive overpass crossing option. The second crossing alignment utilized a much longer bridge span (50m) but was able to avoid the need for a ROW on the adjacent property, at an additional cost of approximately $500,000.

There is a third alignment option for crossing the highway via an overpass, however this option would require the relocation of 3-4 BC Hydro power distribution poles. Relocating a number of poles would allow for the crossing to avoid the need for a ROW, however it would result in the crossing being located further to the North, where the natural highway embankment is lower, resulting in larger volumes of earth fill to achieve the required clearance between the underside of the overpass and the highway surface. WSP expects this third option to fall somewhere in between the costs of the two previously evaluated alignments, however, in order to develop a more accurate estimate of cost this third alignment would need to be analyzed in further detail and a project design would need to be initiated with BC Hydro to determine the costs associated with relocation of their poles.

UTILITY POLE CONFLICT

There are two utility anchor poles within the highway ROW next to the property LOT 1 PLAN 12791. The poles are located such that the trail has insufficient room to fit between the edge of the highway and the poles, while maintaining the 9.0m clearance clear-zone requirement. As such, the trail alignment must follow the outside edge of the poles, which results in the need for a 6.0m wide ROW on property LOT 1 PLAN 12791.

If the anchor poles can be removed/relocated, the trail could be pulled into the highway ROW (and still maintain the 9.0m clear-zone requirement), which would eliminate the need for a ROW through the adjacent private property. The utility anchor poles appear to be providing lateral support to the distribution poles on the West of the highway, and the removal of the anchor poles could possibly be supplemented by bracing or an additional pole, however each of these options would likely require BC Hydro to have a ROW with the property owners on the West side of the highway. A project design would need to be initiated with BC Hydro to evaluate the costs and feasibility of these utility pole relocations.

CULVERT EXTENSION ON FISH BEARING STREAM

At station 1+370 of the Option 1 trail route there is an existing stream that crosses the highway with via 1800mm dia CSP culvert. As such, the trail will have to cross this stream by extending the culvert by 10m. This stream is likely to be fish bearing and would require a permit with FLNRO for works in the stream.

RETAINING WALL

A retaining wall is required between stations 1+480 to 1+580 due to the slope of the existing embankment next to the highway. The topography through this area climbs rapidly from the highway ditch line to the hillside above the highway to the East. For the trail to maintain clear-zone requirements and avoid filling in the highway ditch, a section of retaining will must be constructed to create adequate room along the edge of the hill. The height of the retaining wall will vary approximately through this section from 1-4m. There are numerous types of retaining walls that can be utilized for this application, some of which blend into the natural environment quite well, however these types of details would be determined during detailed design.

UTILITIES

The following utilities are adjacent to or cross the Trail Option 1 alignment.

POWER POLES AND OVERHEAD POWERLINES

An overhead powerline runs along Highway 16 and parallels the east side of Trail Option 1 from Station 0+000 to 0+300. There are guywires anchored in the cut/fill area at 0+830, 0+885, 1+385. All other power poles and guywires are outside of the cut/fill area.

GAS MAINS

Two parallel gas mains run along the Trail Option 1 from Station 0+280 to 1+050. The gas mains run along the east side of the trail from 0+280 to 0+600, then crosses under the trail at Station 0+600 to 0+630. From Station 0+630 to 1+050, the gas mains run parallel on the west side of the trail.

PROBABLE COST

Table 2 below is a Class “C” level cost estimate for the engineering and construction costs associated with Trail Option 1. Note that this opinion of cost does not include external items such as the cost of land acquisition, utility relocations, regulatory applications & approvals etc. For a more detailed breakdown of the opinion of cost refer to **Appendix B** at the end of this report.

Table 2: Trail Option 1 Probable Cost

OPTION 1 – FIRST SEGMENT OF TRAIL	OPINION OF COST
General Costs (Mob, Demob, Insurance, Survey, Quality Control, etc.)	$83,000
Cycle Path Construction	$578,935
Highway Crossing - Overpass	$747,000
Anticipated Construction Cost:	**$1,408,935**
Consulting Fees for Design (15% for Trail, 20% for Overpass):	$248,690
Sub-total:	**$1,657,625**
Contingency (25% of Sub-total):	$414,406
Total:	**$2,072,031**

TRIAL OPTION 2

Trail Option 2 consists of a section of trail that is approximately 1655m in length and utilizes an underpass structure to cross Highway 16. The conceptual design drawings for this section of the trail can be found in **Appendix A2** at the end of this report. This route option has been analyzed in detail with the findings summarized below:

GENERAL ALIGNMENT

The alignment for Trail Option 2 starts at the Laidlaw Frontage Rd. on the West side of Highway 16 where Phase 1 of the Cycle 16 trail ends. The Trail Option 2 continues Southwest towards Telkwa parallel to Highway 16 for 1.5km. The trail then turns towards the East to cross under Highway 16 via an underpass structure. From here, the trail starts to diverge from the highway, heading South for 50m where it connects with the final common alignment segment of Phase 2.

Figure 3: Cycle 16 Phase 2 - Option 2Trail Route

HIGHWAY CROSSING - UNDERPASS

Trail Option 2 includes construction of a new 32m long underpass structure made of precast concrete box culvert sections. The box culvert sections are pre-engineered to MOTI specifications and require a minimum cover of 0.6m from the top surface of the culvert to the surface of the highway. The 3.05m (wide) x 2.70m (tall) option meets BC Active Transportation requirements for minimum vertical clearance of 2.7m and is “short” enough that the culvert can have passive drainage. 300mm dia. CSP culverts are required at each end of the box culvert underpass.

ADJACENT PROPERTIES

The Trail Option 2 crosses through, or beside the following properties:

- REM FRACTIONAL S.E. ¼ SEC. 17 TP (ROW Required)
- LOT A PLAN 7016 (ROW Required, Driveway Crossing)
- LOT 1 PLAN 3855 (ROW Required, Driveway Crossing)
- LOT 4 PLAN 6040 (ROW Required, Driveway Crossing)
- BLOCK 1 PLAN 1624 CROWN LAND (ROW Required)

- LOT 1 PLAN EPP60316 (ROW Required, Driveway Crossing)
- LOT 3 PLAN EPP60316

RIGHT-OF-WAYS

The Option 2 trail requires a total of six right-of-ways, all of which are detailed below by the legal property description, approximate width and total size. For the purposes of this conceptual design, the size and width of each ROW have been approximated based on the minimum size of ROW required while maintaining the minimum 9.0m offset from the highway (clear-zone) and ensuring the full trail embankment falls within the proposed ROW. WSP notes that the final size and width of the ROW may vary based on other external factors from stakeholders such as; who will be the owner of the ROW, the reluctance of the property owner to grant the ROW, the ability to avoid utility conflicts amongst other factors.

The ROW's required for Option 2 are:

- **REM FRACTIONAL S.E. ¼ SEC. 17 TP**
  - 7.5m by 250m, 0.186 ha
- **LOT A PLAN 7016**
  - 3m by 74m, 0.022 ha
  - Driveway Crossing Required
- **LOT 1 PLAN 3855**
  - 3m by 71m, 0.021 ha
  - Driveway Crossing Required
- **LOT 4 PLAN 6040**
  - 3m by 200m, 0.060 ha
  - Driveway Crossing Required
- **BLOCK 1 PLAN 1624 CROWN LAND**
  - 15m by 80m, 0.120 ha
- **LOT 1 PLAN EPP60316**
  - 5m by 570m, 0.285 ha
  - 7.5m by 125m, 0.094 ha
  - Driveway Crossing Required

NOTABLE DESIGN CONSIDERAITONS

With each trail route option there are specific design considerations that are notable and are worth exploring in further detail. The following is a brief discussion of the notable design considerations that are specific to Option 2.

BUILDING RELOCATION

In order to achieve the 9.0m clear-zone requirement for the trail, as well as well as maintain adequate separation from the trail and the building structure on property, LOT 1 PLAN 3855, the building would have to be relocated 5-10m to the West of it's current location. Along with the relocation of the structure, WSP would expect that some landscaping and driveway realignment work would be required. The extent of work required to relocate the structure needs to be investigated further along with the property owner's receptiveness to the proposed relocation if Option 2 is pursued.

CULVERT EXTENSION ON FISH BEARING STREAM

At station 1+305 of the Option 2 trail route there is an existing stream that crosses the highway with via 1800mm dia CSP culvert. As such, the trail will have to cross this stream by extending the culvert by 4m. This stream is likely to be fish bearing and would require a permit with FLNRO for works in the stream.

DRIVEWAY REALIGNMENT AND PRIVACY FENCING

At station 1+320 of the Option 2 trail route there is a driveway accessing property LOT 1 PLAN EPP60316 which the trail will have to cross. Right near the crossing point for this property the driveway splits into two. Looking at the current driveway configuration, WSP believes that a minor realignment to the driveways would be required to ensure the best possible crossing configuration. Furthermore, privacy fencing through this section of trail would likely be required to give the property owner added comfort and privacy as the new trail will be relatively close to their home.

UTILITIES

The following utilities are adjacent to or cross the Trail Option 2 alignment.

POWER POLES AND OVERHEAD POWERLINES

An overhead powerline runs along Highway 16 and parallels the east side of the trail from Station 0+000 to 0+140. There are power poles, with or without guywires, in the cut/fill area at 0+545, 0+900, 0+975, 1+190, 1+340. There are guywires anchored in the cut/fill area at 0+600, 0+680, 1+540. All other power poles and guywires are outside of the cut/fill area.

GAS MAINS

Two parallel gas mains run along the East side of Highway 16 and do not come into close proximity with the Trail Option 2 alignment.

PROBABLE COST

Table 3 below is a Class "C" level cost estimate for the engineering and construction costs associated with Trail Option 1. Note that this opinion of cost does not include external items such as the cost of land acquisition, utility relocations, regulatory applications & approvals etc. For a more detailed breakdown of the opinion of cost refer to **Appendix B** at the end of this report.

Table 3: Trail Option 2 Probable Cost

OPTION 2 – FIRST SEGMENT OF TRAIL	OPINION OF COST
General Costs (Mob, Demob, Insurance, Survey, Quality Control, etc.)	$80,000
Cycle Path Construction	$538,098
Highway Crossing - Underpass	$526,655
Anticipated Construction Cost:	**$1,144,753**
Consulting Fees for Design (15% for Engineering Services):	$171,712
Sub-total:	**$1,316,465**
Contingency (25% of Sub-total):	$329,116.49
Total:	**$1,645,582**

FINAL SEGMENT OF TRAIL

The Trail Option 1 and Option 2 alignments converge just after the proposed underpass location, at which point a single common alignment is proposed for the remaining portion of trail for Phase 2. The final segment of trail is approximately 1900m in length and the conceptual design drawings for this section of the trail can be found in **Appendix A3** at the end of this report. This route option has been analyzed in detail with the findings summarized below:

GENERAL ALIGNMENT

The final segment of trail starts on the East side of Highway 16 where Trail Option 1 and Option 2 end. The trail heads South within the Highway ROW along an old section of Highway for 500m. The trail then re-joins the Highway 16 alignment for 1.4km heading towards Telkwa. The trail alignment maintains about 15m distance from Highway 16 but moves closer to Highway 16 two times; once to follow natural elevation contours from Station 2+830 to 2+930 and once to avoid existing Grieder Road from Station 3+050 to 3+120.

Figure 4: Cycle 16 Phase 2 - Final Segment Trail Route

ADJACENT PROPERTIES

The final segment of trail crosses through, or beside the following properties:

- Lot 3 PLAN EPP60316 (ROW Required)
- N.E. ¼ SEC 5 TP4 EXCEPT PLAN 8393
- LOT 1 PLAN 8393
- LOT A PLAN PRP41613
- N.W. ¼ SEC 4 TP4

RIGHT-OF-WAYS

The final segment of trail requires a right-of-way through the following property:

- **Lot 3 PLAN EPP60316**
    - 3m by 65m, 0.020 ha

NOTABLE DESIGN CONSIDERAITONS

With each trail route option there are specific design considerations that are notable and are worth exploring in further detail. The following is a brief discussion of the notable design considerations that are specific to final segment of the trail.

OLD HIGHWAY ALIGNMENT

The final segment of the trail starts on an old section of highway that is approximately 550m in length. This section of abandoned highway is a perfect stretch of dedicated and un-used highway ROW for the trail to follow. Although the section of highway is currently paved and could likely be used for the trail in it's existing state, the pavement is old and full of cracks, had weeds growing through it and would require replacement before the rest of the trail. WSP believes that the best approach would be to recycle the asphalt and pave a new section for the trail that is 3m in width so that it is consistent with the rest of the trail. The underlying pavement structure is likely sufficient to support the trail, so no additional structural fill would be required. While removal of the existing asphalt and the addition of new asphalt does add to the project costs, we feel that it would result in the best long-term solution ensuring that the serviceability life of this section of trail matches the rest of the trail.

LEGAL PROPERTY ISSUES

In the process of developing the conceptual design for Phase 2 of the Cycle 16 trial it came to WSP's attention that there are a handful of areas along the last segment of Phase 2 where the online mapping is incorrect, and the highway has not been removed from the adjacent properties. WSP was advised by local legal land surveyors that the first steps should be to investigate the legal tenures along the route by pulling titles for the properties along this section of the highway to check that the highway has been properly removed from the title. This will be an important issue to address prior to ROW negotiation and acquisition and the completion of the detailed design for Phase 2 to ensure that the trail is designed and constructed within an approved ROW.

UTILITIES

There are no utilities along the final segment of trail alignment that will conflict with the trail or construction.

PROBABLE COST

Table 4 below is a Class "C" level cost estimate for the engineering and construction costs associated with Trail Option 1. Note that this opinion of cost does not include external items such as the cost of land acquisition, utility relocations, regulatory applications & approvals etc. For a more detailed breakdown of the opinion of cost refer to **Appendix B** at the end of this report.

Table 4: Final Segment of Trail Probable Cost

FINAL SEGMENT OF TRAIL	OPINION OF COST
General Costs (Mob, Demob, Insurance, Survey, Quality Control, etc.)	$71,500
Cycle Path Construction	$489,120
Anticipated Construction Cost:	**$560,620**
Consulting Fees for Design (15% for Engineering Services):	$84,093
Sub-total:	**$644,713**
Contingency (25% of Sub-total):	$161,178
Total:	**$805,891**

OPTION STUDY SUMMARY

The two route options that were studied and analyzed in this report each come with their own sets of pros and cons. The primary factors that should be considered when evaluating the best route are total cost, required ROWs and overall maintenance. We have summarized our findings for each of these factors below.

COST

Cost is often the primary driving factor when evaluating the feasibility of different options, especially when the project is relying on grant funding for construction which is the case for Cycle 16. A Class "C" level opinion of cost was developed for each route option which indicates that Option 1 is approximately **$426,450** (or 18%) more expensive than Option 2. It is important to note however that the cost comparison does not include costs related to ROW acquisitions, legal survey, utility relocations, regulatory applications etc. A detailed breakdown and cost comparison of the two options can be seen below in Table 5.

Table 5: Opinion of Cost for Complete Phase 2 Trail – Option Comparison

	OPTION 1	OPTION 2
First Segment of Trail	$661,935	$618,098
Highway Crossing	$747,000	$526,655
Final Segment of Trail	$489,120	$489,120
SUBTOTAL (1)	**$1,898,055**	**$1,633,874**
Engineering Services (15%)*	$322,058	$245,081
SUBTOTAL (2)	**$2,220,114**	**$1,878,955**
Contingency (25%)	$555,028	$469,738
TOTAL	**$2,775,142**	**$2,348,693**

*engineering services for the overpass are 20%

LAND ACQUISITION / ROWS

Acquiring land for the development of a project or obtaining a ROW on a property can be a lengthy and time-consuming process. In some cases, property owners can be reluctant to sell a portion of their property or grant a ROW through their property making one alignment option more favorable than the another. As such, each property owner along the trail route where a ROW is required will need to be approached to determine the likelihood of obtaining the ROW and what the cost of the ROW would be. This type of information is needed in order to do a direct comparison of the feasibility of the two routes, however this falls outside of WSP's conceptual design scope, and is not covered in this report.

The Option 1 trail route (including the final segment) requires four ROWs for a total of 0.632 ha of land. However, there is the possibility to eliminate two of the four ROWs for Option 1 by pursuing utility pole relocations (as discussed previously in this report). If the conflict with utility poles can be resolved, then only two ROWs would be required for a total of 0.426ha. The Option 2 trail route (including the final segment) requires seven ROWs for a total of 0.808 ha of land.

If an average cost of $100,000 per hectare is assumed for the purposes of comparing land acquisition between the two options, then the cost of ROWs for Option 1 would be **$63,200** (or $42,600 if two of the ROWs can be eliminated) and **$80,080** for Option 2. Note that the average estimated cost of $100,000 per hectare is for

comparative purposes only and does not include other costs such as legal survey, ALC applications, development of reclamation plans etc.

MAINTENANCE

The two highway crossing structures that were compared in this report, pre-cast concrete box culvert underpass and prefabricated underhung type pony truss bridge are both low maintenance structures that do not require any specific annual maintenance that is not already covered in the standard trail maintenance, with the exception of snow clearing that would be required for the overpass from Option 1. The Ministry has indicated that regular snow clearing for the overpass would be required to ensure snow cannot fall from the structure to the highway below during the winter months. Furthermore, the overpass option would also require that the pony truss bridge be inspected on an annual basis by a structural engineer to verify it's structural integrity. Because the pre-cast box culvert underpass, passes beneath the highway, structural inspections are not required by MOT standards.

The cost of a structural inspection for a bridge of this size can vary based on a number of factors such as the inspection firm's proximity to the bridge and how many bridges are being inspected at once. If an inspection firm is able to complete inspections on a number of bridges at one time, then the cost for an inspection of a bridge this size would be approximately $5,000.

NEXT STEPS

Following the completion of the Phase 2 Conceptual Design, WSP has outlined the primary remaining steps for the project in order to take Phase 2 of the Cycle 16 trail from concept to construction. The list of next steps has been detailed below however, please note that this is not an exhaustive list and there may be additional steps required for this phase of the project that are not mentioned below.

- Select preferred route (Option 1 or Option 2)
- Investigate and reconcile legal property issues for final segment of Phase 2 trail
- Acquire ROW's identified in conceptual design associated with the selected preferred route
- Apply for ALC approval for each ROW
- Apply for ALC approval for section of trail within the Ministry ROW
- Apply for BC Hydro properties approval for Phase 2
- Commence project design meetings with BC Hydro to address utility conflicts (if required)
- Proceed with Detailed Design of Phase 2
    - Conduct topo survey
    - Conduct geotechnical investigation
    - Conduct environmental assessment / environmental management plan
    - Archaeological overview assessment
    - Prepare detailed construction drawings, specifications & tender package
- Conduct public consultation for Phase 2
- Regional District to obtain permit/license of occupation agreement with MOT for Phase 2
- Tender Phase 2 construction works
- Construction of Phase 2

CONCLUSION

WSP has completed option study for the Phase 2 of the Cycle 16 Trail project by completing conceptual drawing sets and cost estimates for the two different trail route options, and for the final segment for trail for Phase 2. Included in the option study WSP summarized the input data and design criteria that was used for the conceptual designs as included a detailed discussion on each of the trail routes which included descriptions of the trail alignment, adjacent properties, ROWS that are needed, notable design considerations, utilities along the route and an opinion of cost. All of this information was then summarized and compared within the three categories of cost, land acquisition and maintenance.

No recommendation was made in this report as to which trail route should be selected as there are a number of factors to weigh and a number of stakeholders whom have to work together to make a final decision. As such, the goal of this report was to investigate the two route options gather as much information as possible and present it in this report to inform all project stakeholders and to assist in making the final decision.

Upon review of our conceptual design report by all stakeholders, WSP would be pleased to discuss our findings with all of the stakeholders involved.

APPENDIX

A1

CONCEPTUAL DEISGN DRAWINGS
TRAIL OPTION 1

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FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

1:500 — 0 10 30m

EXISTING / PROPOSED

SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 30149276

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PLAN – STA 0+000 TO 0+420 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 001

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\001 PLAN – STA 0+000 TO 0+420 (OP 1).dwg Plotted 8 July 2021

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1:500 0 10 30m

DATE	REV	DESCRIPTION	BY	APPR.
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DATE	REV	DESCRIPTION	BY	APPR.

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FM FORCEMAIN, X FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FM FORCEMAIN, X FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBRE OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, SERVICE BOX, SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-15

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
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MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PLAN – STA 0+420 TO 0+840 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 002

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\002 PLAN – STA 0+420 TO 0+840 (OP 1).dwg Plotted 8 July 2021

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FOR APPROVAL 2021-07-08

1:500 — 0 10 30m

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS, FIB FIBRE OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — 2021-07-15 — A. P. KINDRAT

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
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MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PLAN – STA 0+840 TO 1+260 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 003

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\003 PLAN – STA 0+840 TO 1+260 (OP 1).dwg Plotted 8 July 2021

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DATE	REV	DESCRIPTION	BY	APPR.

1:500 — 0 10 30m

EXISTING / PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW–OFF, CURB STOP, DAVIT LAMP, POST–TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-08

wsp
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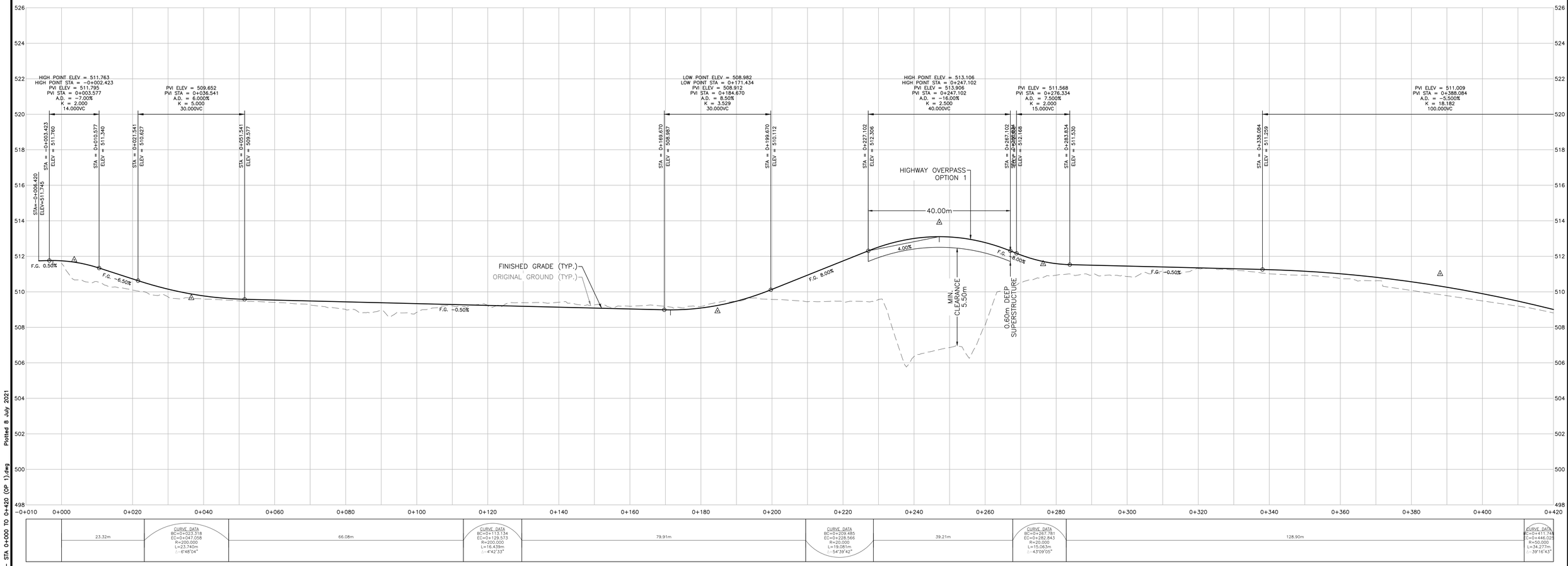
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PLAN – STA 1+260 TO 1+680 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 004

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\004 PLAN – STA 1+260 TO 1+680 (OP 1).dwg Plotted 8 July 2021



Plotted 8 July 2021

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\005 PROFILE – STA 0+000 TO 0+420 (OP 1).dwg

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0 10 H 1:500 30m
0 2 V 1:100 6m

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EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBRE OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

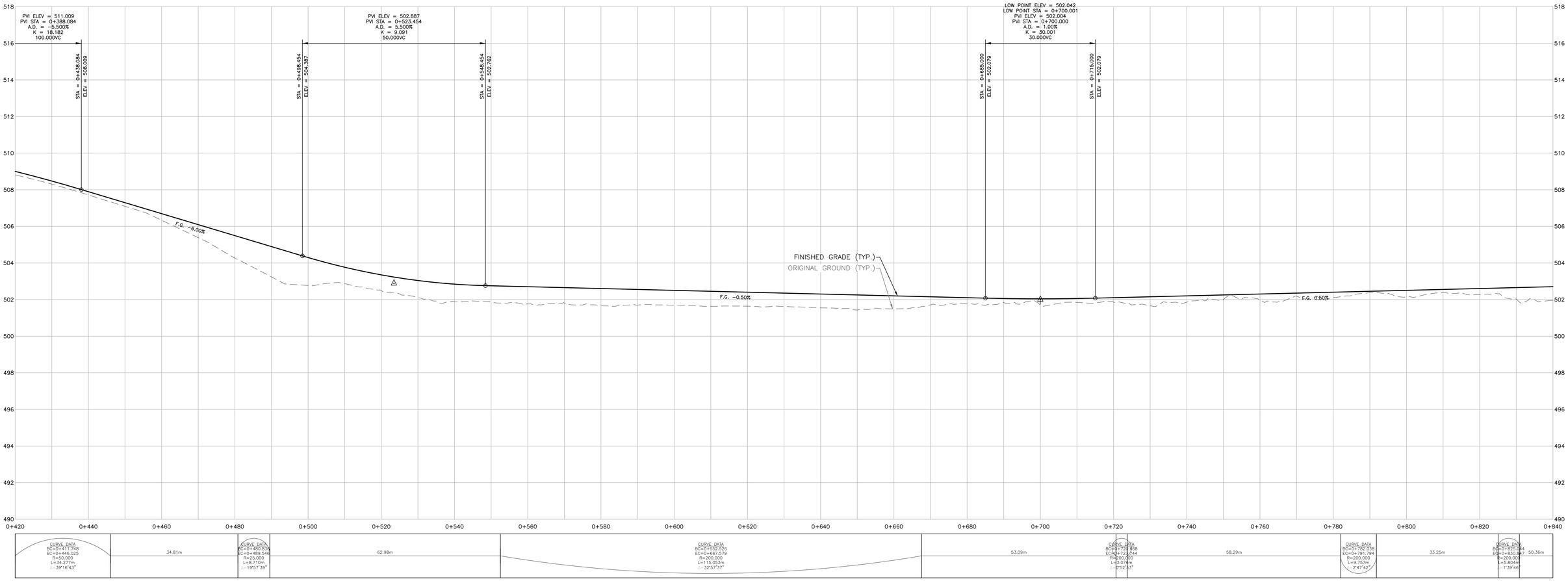
SCALE	AS NOTED
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-15 — ENGINEER

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PROFILE – STA 0+000 TO 0+420 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 005



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0 10 H 1:500 30m
0 2 V 1:100 6m

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EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBRE OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	AS NOTED
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

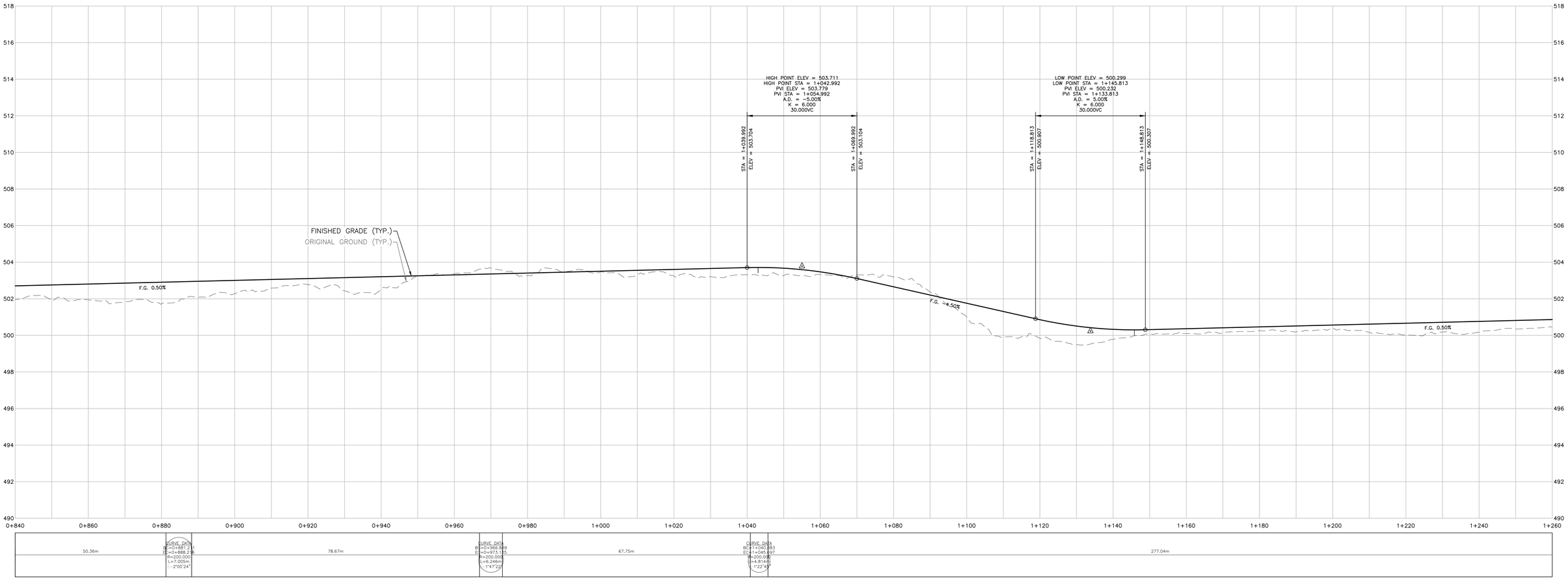
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-08

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PROFILE – STA 0+420 TO 0+840 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 006

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\006 PROFILE – STA 0+420 TO 0+840 (OP 1).dwg Plotted 8 July 2021



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0 10 H 1:500 30m
0 2 V 1:100 6m

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PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBRE OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW–OFF, CURB STOP, DAVIT LAMP, POST–TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

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DRAWN BY	AIP
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PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-08

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PROFILE – STA 0+840 TO 1+260 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 007

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\007 PROFILE – STA 0+840 TO 1+260 (OP 1).dwg Plotted 8 July 2021

Plotted 8 July 2021

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\008 PROFILE – STA 1+260 TO 1+680 (OP 1).dwg

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"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

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0 2 V 1:100 6m

EXISTING / PROPOSED

SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE
U/G UNKWN. PIPE, GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE
EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE
SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV.
SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.)
STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.)
FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP
DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

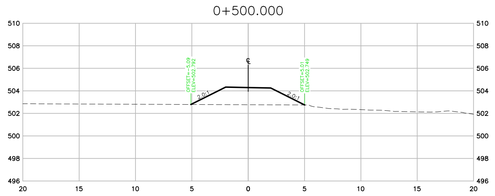
SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

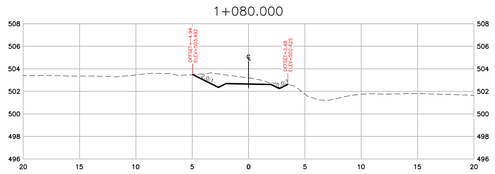
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
2021-07-15
A. P. KINDRAT
20 GAS
COLUMBIA
ENGINEERING

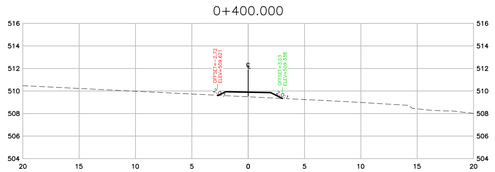
wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

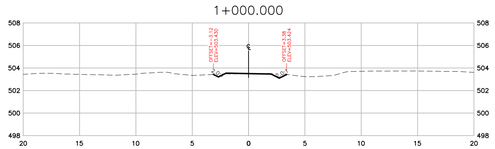
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
PROFILE – STA 1+260 TO 1+680 (OP 1)

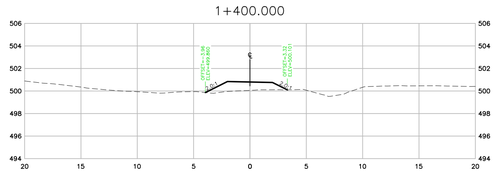
REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 008

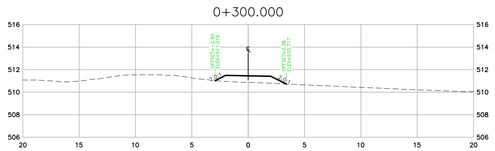


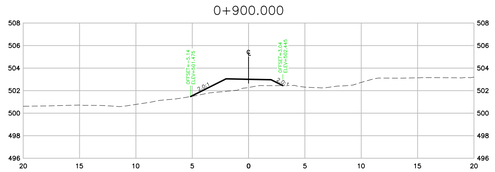


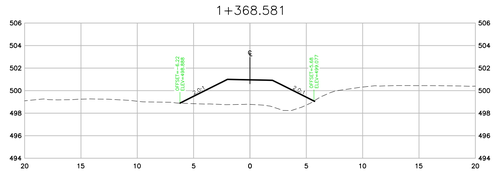


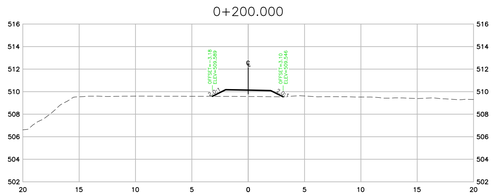


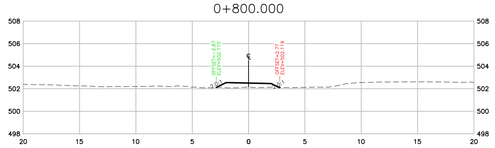


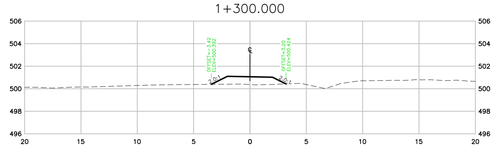


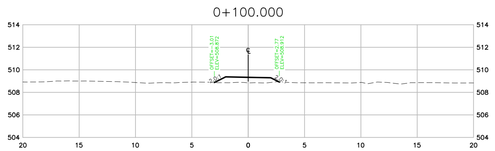


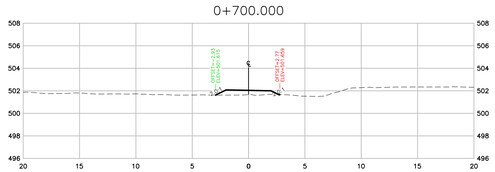


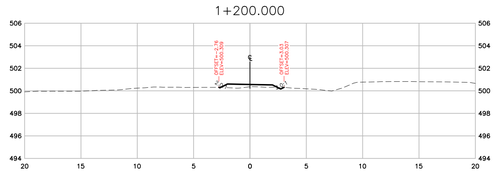


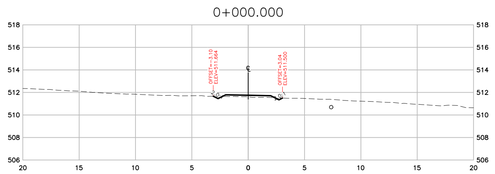


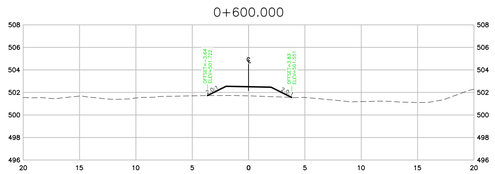


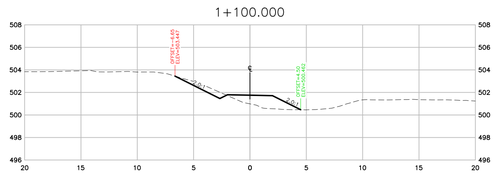












SECTIONS

1:250 0 5 15m

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SCALE	1:250
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

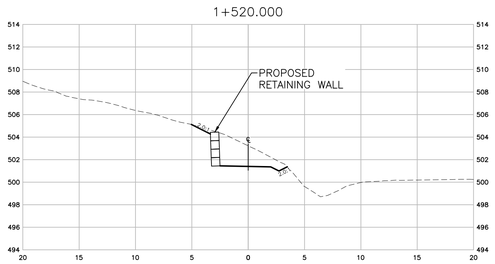
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-08

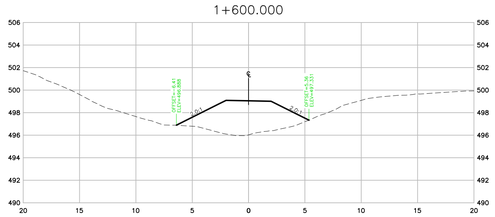
wsp
#420–301 VICTORIA STREET, KAMLOOPS, BC, V2C 2A3
PHONE (250) 374–5252 FAX (250) 372–8336

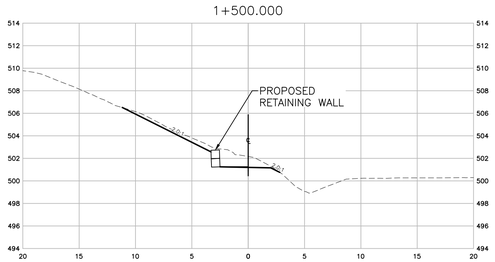
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
SECTIONS – STA 0+000 TO 1+400 (OP 1)

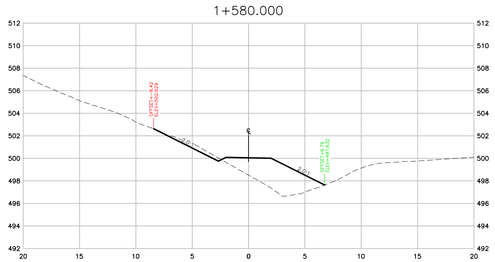
REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 009

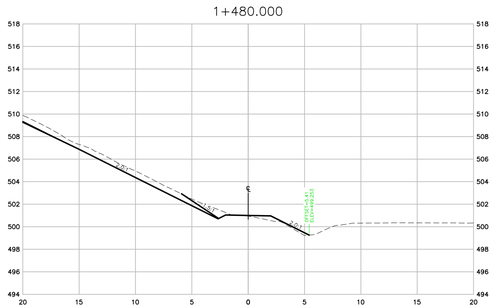
N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2\201–11400–01 WD1 PH2.dwg Plotted 8 July 2021

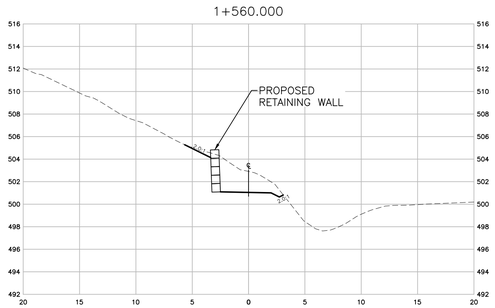


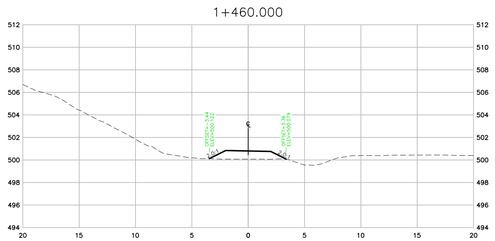


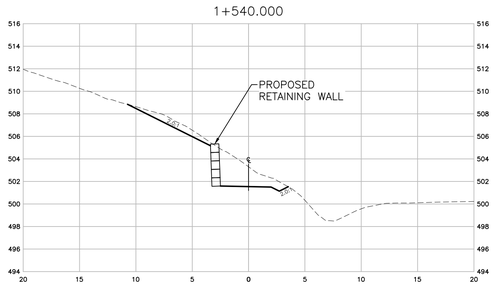












SECTIONS

1:250 — 0 5 15m

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SCALE	1:250
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — 2021-07-15 — A. P. KINDRAT

wsp
#420–301 VICTORIA STREET, KAMLOOPS, BC, V2C 2A3
PHONE (250) 374–5252 FAX (250) 372–8336

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 1
SECTIONS – STA 1+460 TO 1+600 (OP 1)

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 010

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2\201-11400-01 WD1 PH2.dwg Plotted 8 July 2021

APPENDIX

A2

CONCEPTUAL DEISGN DRAWINGS
TRAIL OPTION 2

Plotted 30 April 2019

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\001 PLAN – STA 0+000 TO 0+400.dwg

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DATE	REV	DESCRIPTION	BY	APPR.

1:500 — 0 10 30m

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, UNKWN. PIPE, GAS, FIB, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, UNKWN. PIPE, GAS, FIBRE OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — A. P. KINDRAT — 2021-07-08

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
PLAN – STA 0+000 TO 0+420

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 001

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FOR APPROVAL 2021-07-08

1:500 — 0 10 30m

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PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBRE OPTIC, HYDRO, TELUS, CABLE, BUSHLINE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

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PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-08

wsp
#1-3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847-1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
PLAN – STA 0+420 TO 0+840

REV. No. A
PROJECT No. 201-11400-01
DRAWING No. 002

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\002 PLAN – STA 0+400 TO 0+820.dwg Plotted 8 July 2021

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"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

0 10 30m
1:500

EXISTING / PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE; U/G, GAS, FIB, H, T, C; UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE; EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE; SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV.; SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.); STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.); FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP; DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT · SURVEY HUB · SURVEY HUB · CABLE SERVICE BOX · TEL SERVICE BOX · HYDRO SERVICE BOX · HYDRO VAULT · LOW PROFILE TRANSFORMER · TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 28042 — ENGINEER

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
PLAN – STA 0+840 TO 1+260

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 003

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\003 PLAN – STA 0+820 TO 1+240.dwg Plotted 8 July 2021

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"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

EXISTING / PROPOSED

SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

1:500 — 0, 10, 30m

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

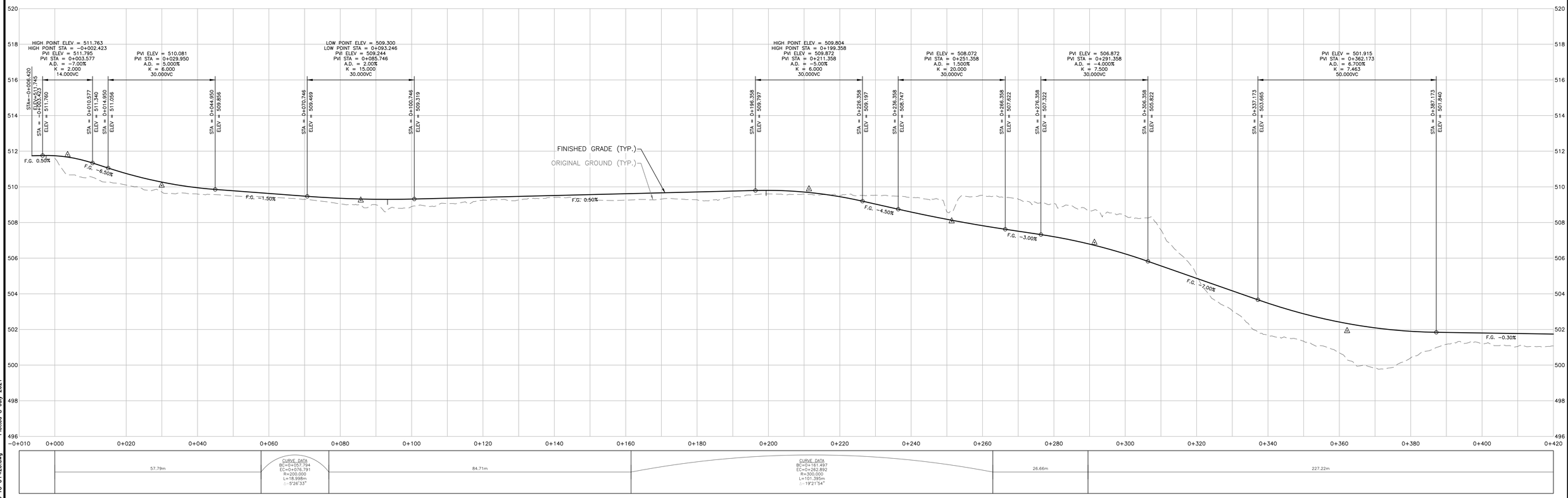
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
PLAN – STA 1+260 TO 1+649

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 004

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\004 PLAN – STA 1+240 TO 1+620.dwg Plotted 8 July 2021



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0 10 H 1:500 30m
0 2 V 1:100 6m

"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021−07−08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	AS NOTED
DATE	2021−07−08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

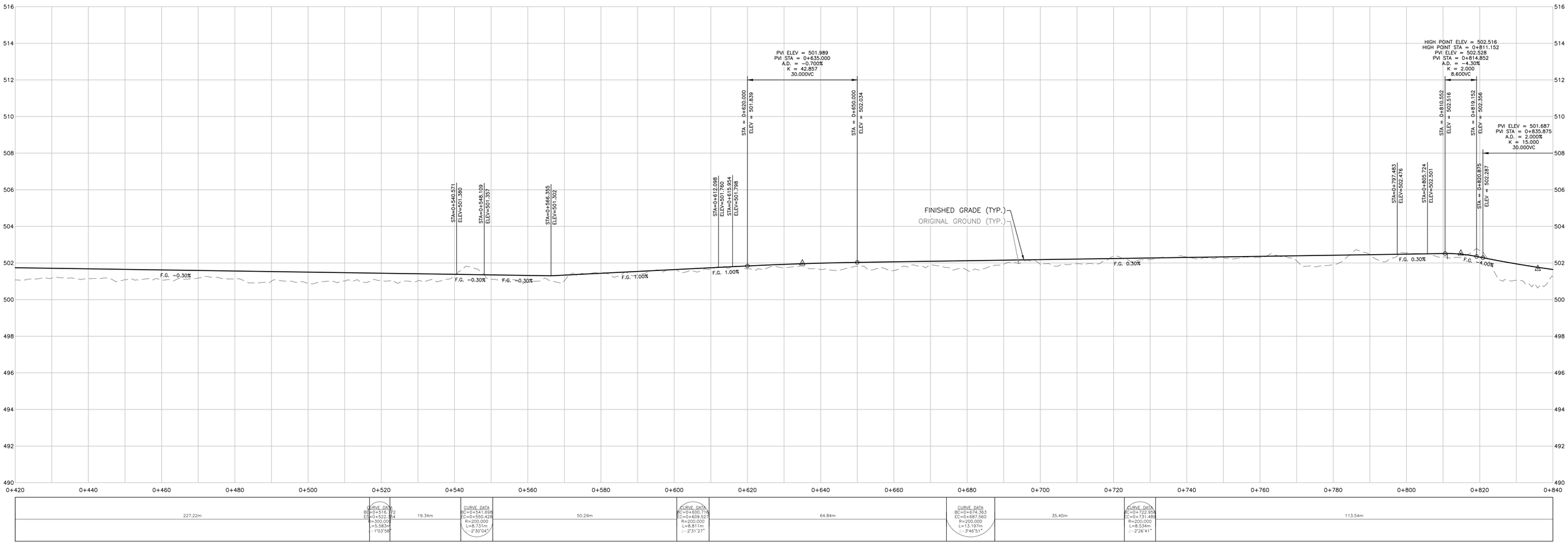
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-08

#1−3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847−1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 − PHASE 2 OPTION 2
PROFILE − STA 0+000 TO 0+420

REV. No. A
PROJECT No. 201−11400−01
DRAWING No. 005

N:\201−11400−01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\005 PROFILE − STA 0+000 TO 0+420.dwg Plotted 8 July 2021



Plotted 8 July 2021

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\006 PROFILE - STA 0+420 TO 0+840.dwg

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"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021-07-08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

0 10 H 1:500 30m
0 2 V 1:100 6m

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBRE OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

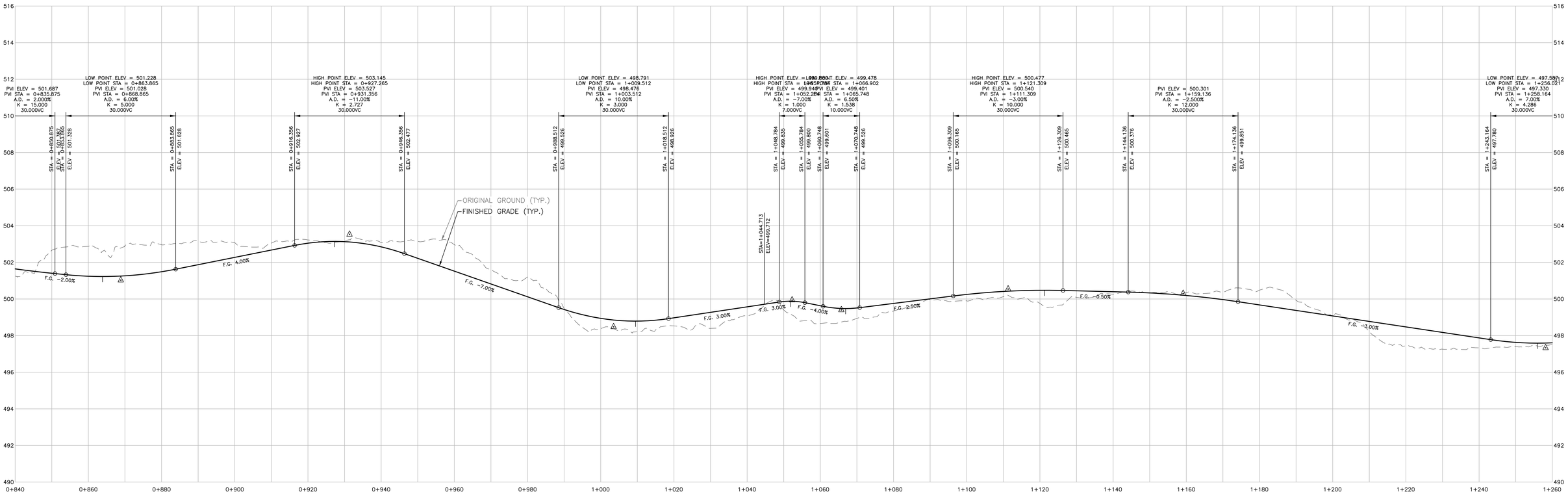
SCALE	AS NOTED
DATE	2021-07-08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-08

wsp
#1-3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847-1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
PROFILE – STA 0+420 TO 0+840

REV. No. A
PROJECT No. 201-11400-01
DRAWING No. 006



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0 10 H 1:500 30m
0 2 V 1:100 6m

"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE; U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE; EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE; SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV.; SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.); STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.); FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP; DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE; U/G UNKWN. PIPE, GAS GAS, FIB FIBRE OPTIC, H HYDRO, T TELUS, C CABLE; EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE; SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV.; SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.); STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.); FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP; DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT; SURVEY HUB; SURVEY HUB; CABLE SERVICE BOX; TEL SERVICE BOX; HYDRO SERVICE BOX; HYDRO VAULT; LOW PROFILE TRANSFORMER; TELEPHONE VAULT

SCALE	AS NOTED
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

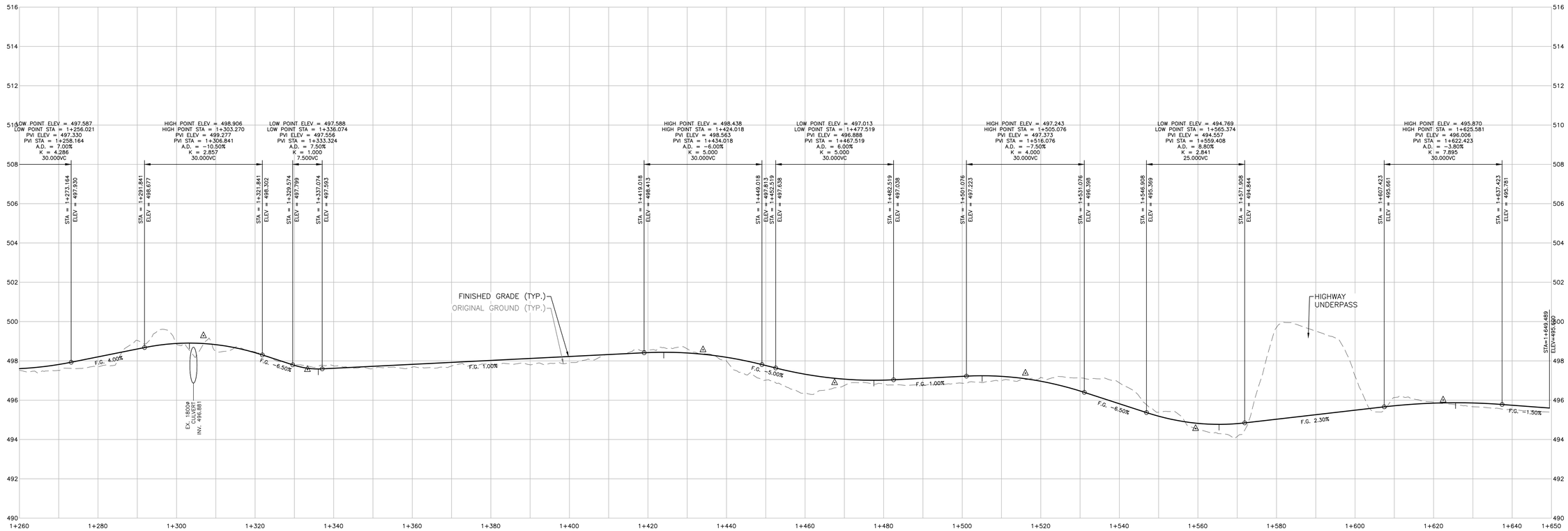
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-15

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
PROFILE – STA 0+840 TO 1+260

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 007

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\007 PROFILE – STA 0+840 TO 1+260.dwg Plotted 8 July 2021



206.47m	67.74m	58.09m	CURVE DATA BC=1+464.683 EC=1+489.652 R=200.000 L=24.969m Δ=7°09'11"	20.94m	CURVE DATA BC=1+510.595 EC=1+529.320 R=100.000 L=18.724m Δ=10°43'42"	26.88m	CURVE DATA BC=1+556.197 EC=1+570.663 R=12.000 L=14.465m Δ=69°03'56"	37.90m	CURVE DATA BC=1+608.560 EC=1+623.557 R=25.000 L=14.997m Δ=34°22'12"	25.88m

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0 10 H 1:500 30m
0 2 V 1:100 6m

"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-05-28

DATE	REV	DESCRIPTION	BY	APPR.
2021-05-28	A	ISSUED FOR REVIEW – 90%	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FM FORCEMAIN, X FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FM FORCEMAIN, X FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	AS NOTED
DATE	2021-05-28
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

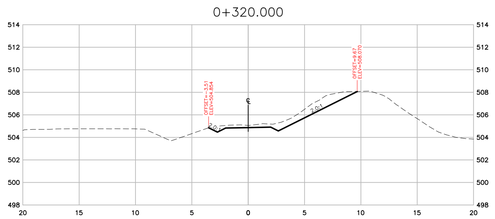
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-05-28 — 33864

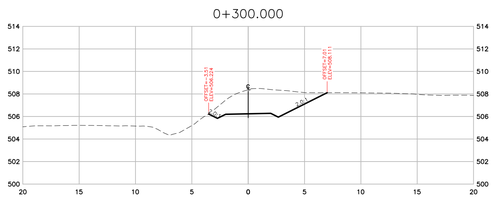
wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

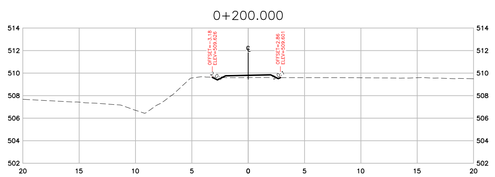
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
PROFILE – STA 1+260 TO 1+649

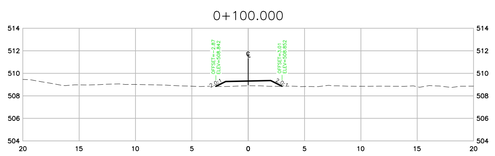
REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 008

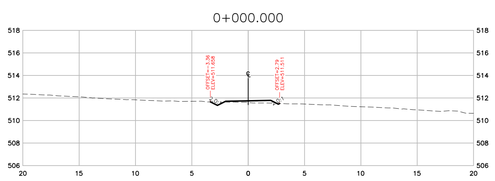
N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\008 PROFILE – STA 1+260 TO 1+649.dwg Plotted 8 July 2021

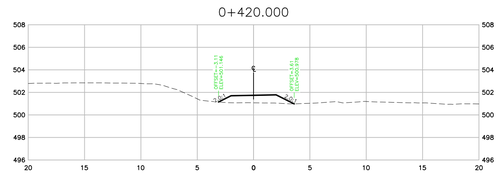


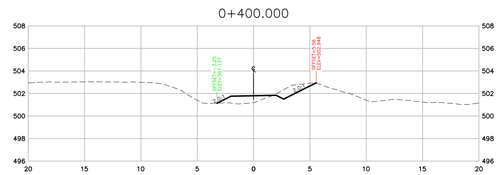


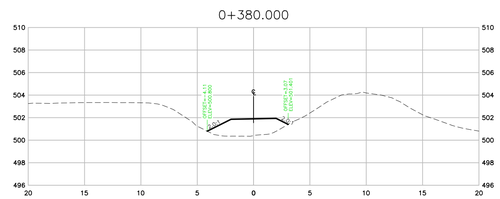


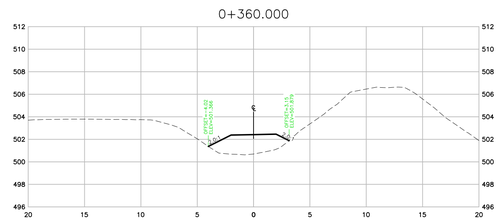


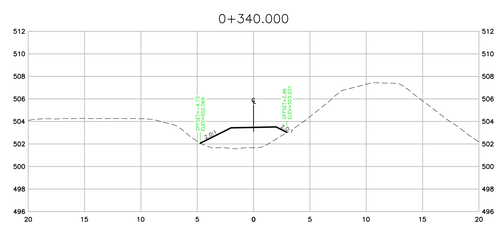


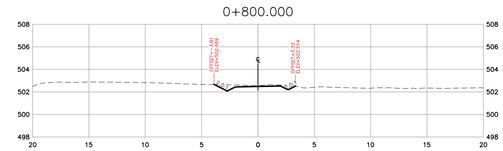


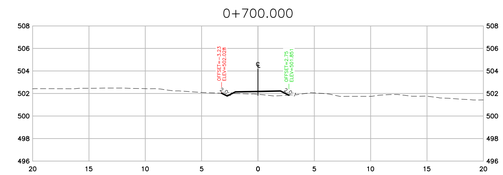


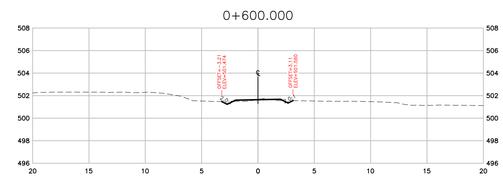


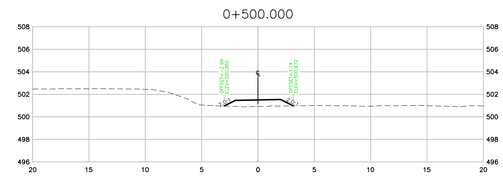


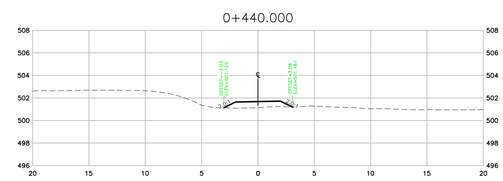












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DATE	REV	DESCRIPTION	BY	APPR.

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DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
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CHECKED BY	AK

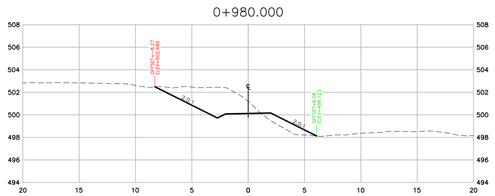
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT

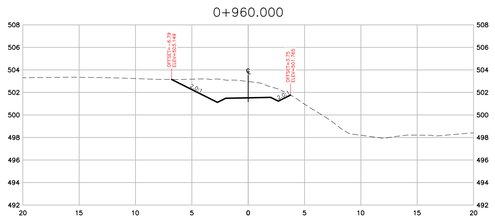
#420–301 VICTORIA STREET, KAMLOOPS, BC, V2C 2A3
PHONE (250) 374–5252 FAX (250) 372–8336

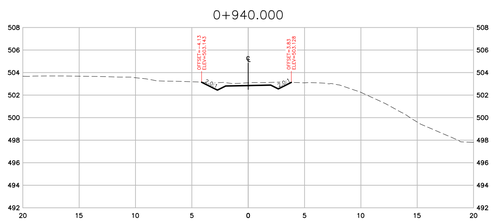
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
SECTIONS – STA 0+000 TO 0+800

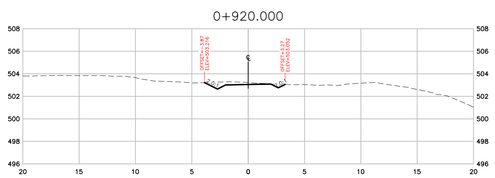
REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 009

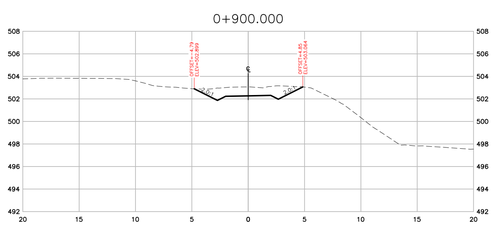
N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2\201–11400–01 WD1 PH2.dwg Plotted 8 July 2021

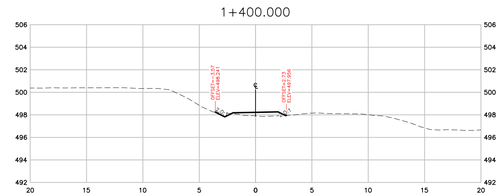


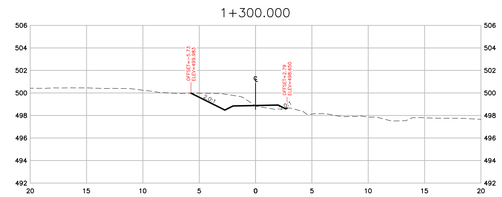


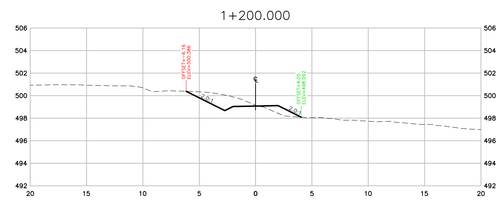


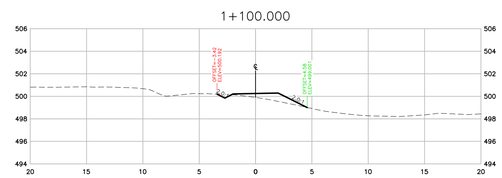


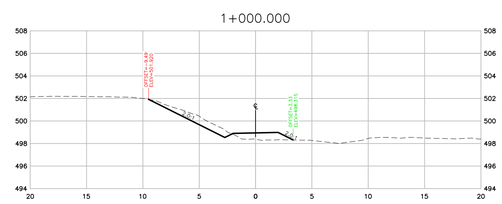


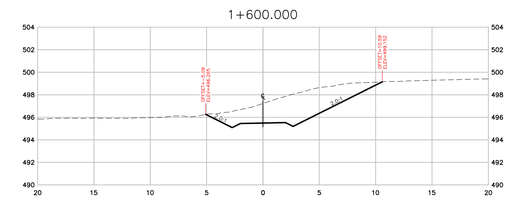


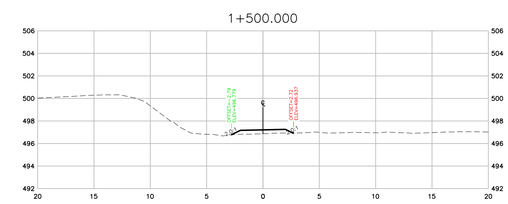












SECTIONS

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CHECKED BY	AK

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT

#420–301 VICTORIA STREET, KAMLOOPS, BC, V2C 2A3
PHONE (250) 374–5252 FAX (250) 372–8336

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 OPTION 2
SECTIONS – STA 0+900 TO 1+600

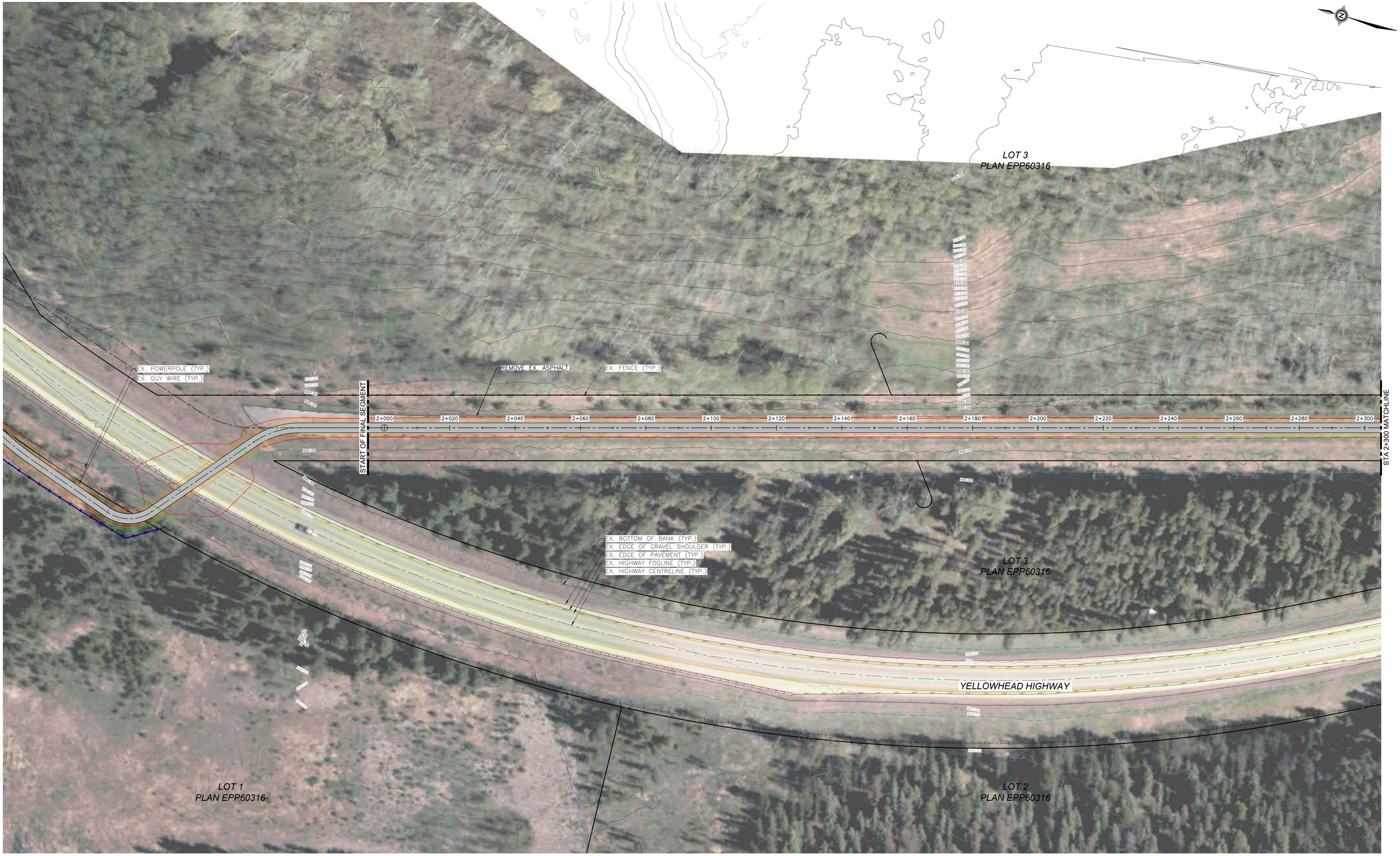
REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 010

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2\201–11400–01 WD1 PH2.dwg Plotted 8 July 2021

APPENDIX

A3

CONCEPTUAL DEISGN DRAWINGS
FINAL SEGMENT OF TRAIL



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EXISTING / PROPOSED

SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE
U/G UNKWN. PIPE, GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE
EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE
SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV.
SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.)
STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.)
FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP
DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
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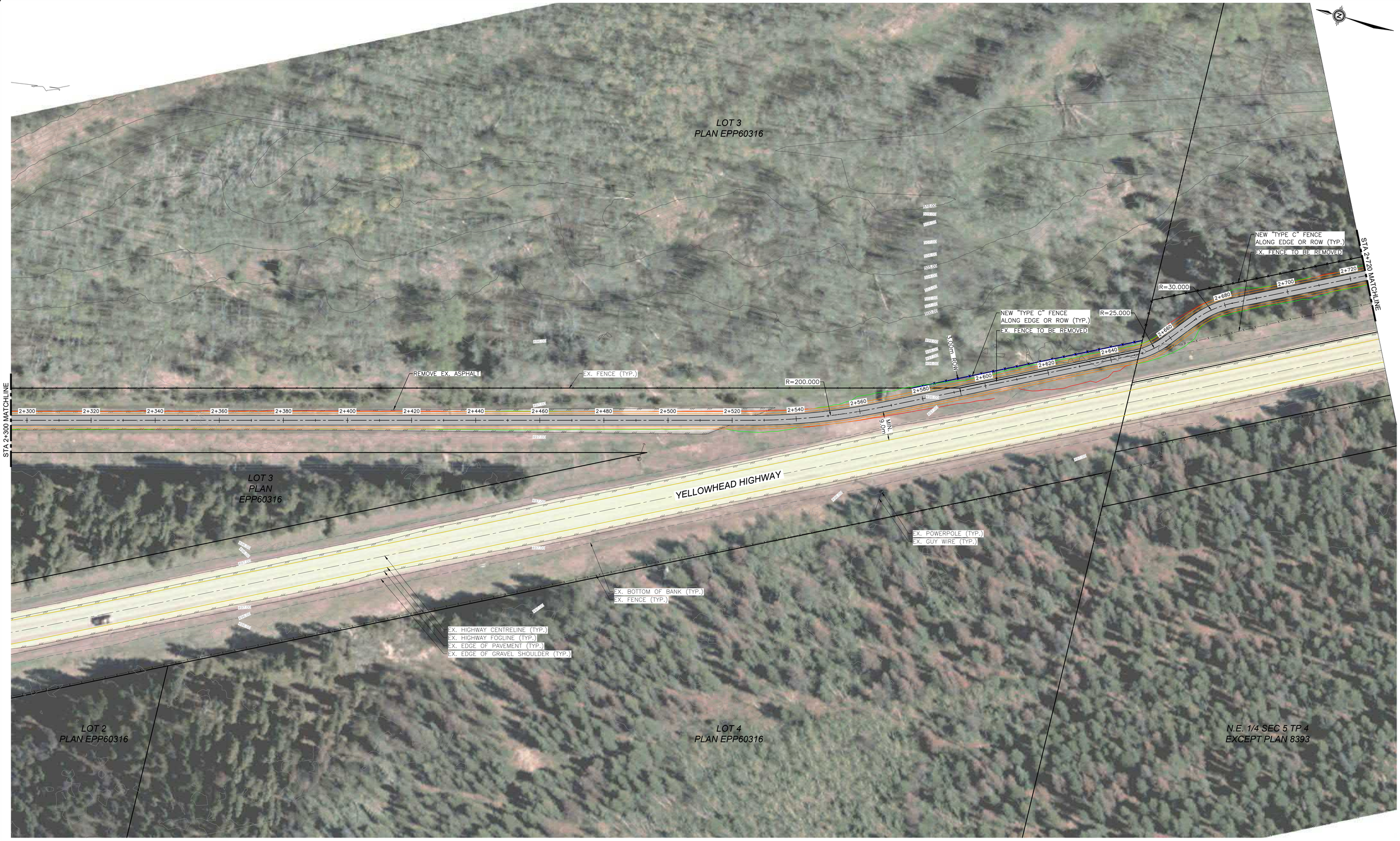
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-15

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PLAN – STA 2+000 TO 2+300

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 001

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\001 PLAN – STA 2+000 TO 2+300.dwg Plotted 8 July 2021



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DATE	REV	DESCRIPTION	BY	APPR.

EXISTING / PROPOSED

SANITARY — STORM — WATER — IRRIGATION — FORCEMAIN — FENCE
U/G UNKWN. PIPE — GAS GAS — FIB FIBER OPTIC — H HYDRO — T TELUS — C CABLE
EDGE OF GUTTER — EDGE OF PAVEMENT — EDGE OF GRAVEL — TOP OF SLOPE — BOTTOM OF SLOPE — BUSHLINE
SWALE — DITCH — CULVERT — HEADWALL — SIGNAGE — SPOT ELEV.
SANITARY MANHOLE — LIFTSTATION — SANITARY CLEANOUT — INSPEC. CHAMBER (SAN.)
STORM MANHOLE — CATCHBASIN MANHOLE — CATCHBASIN — STORM CLEANOUT — INSPEC. CHAMBER (STM.)
FIRE HYDRANT — AIR RELEASE — GATE VALVE — CAP W/ BLOW-OFF — CURB STOP
DAVIT LAMP — POST-TOP LAMP — POLE W/ GUYWIRE — TEST PIT — MONITORING WELL

MONUMENT — SURVEY HUB — SURVEY HUB — CABLE SERVICE BOX — TEL SERVICE BOX — HYDRO SERVICE BOX — HYDRO VAULT — LOW PROFILE TRANSFORMER — TELEPHONE VAULT

1:500 0 10 30m

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PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 2021-07-08

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PLAN – STA 2+300 TO 2+720

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 002

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\002 PLAN – STA 2+300 TO 2+720.dwg Plotted 8 July 2021

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EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, UNKWN. PIPE, GAS, FIBRE OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT — SURVEY HUB — SURVEY HUB — C CABLE SERVICE BOX — T TEL SERVICE BOX — H HYDRO SERVICE BOX — H HYDRO VAULT — LPT LOW PROFILE TRANSFORMER — T TELEPHONE VAULT

SCALE	1:500
DATE	2021-07-08
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DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

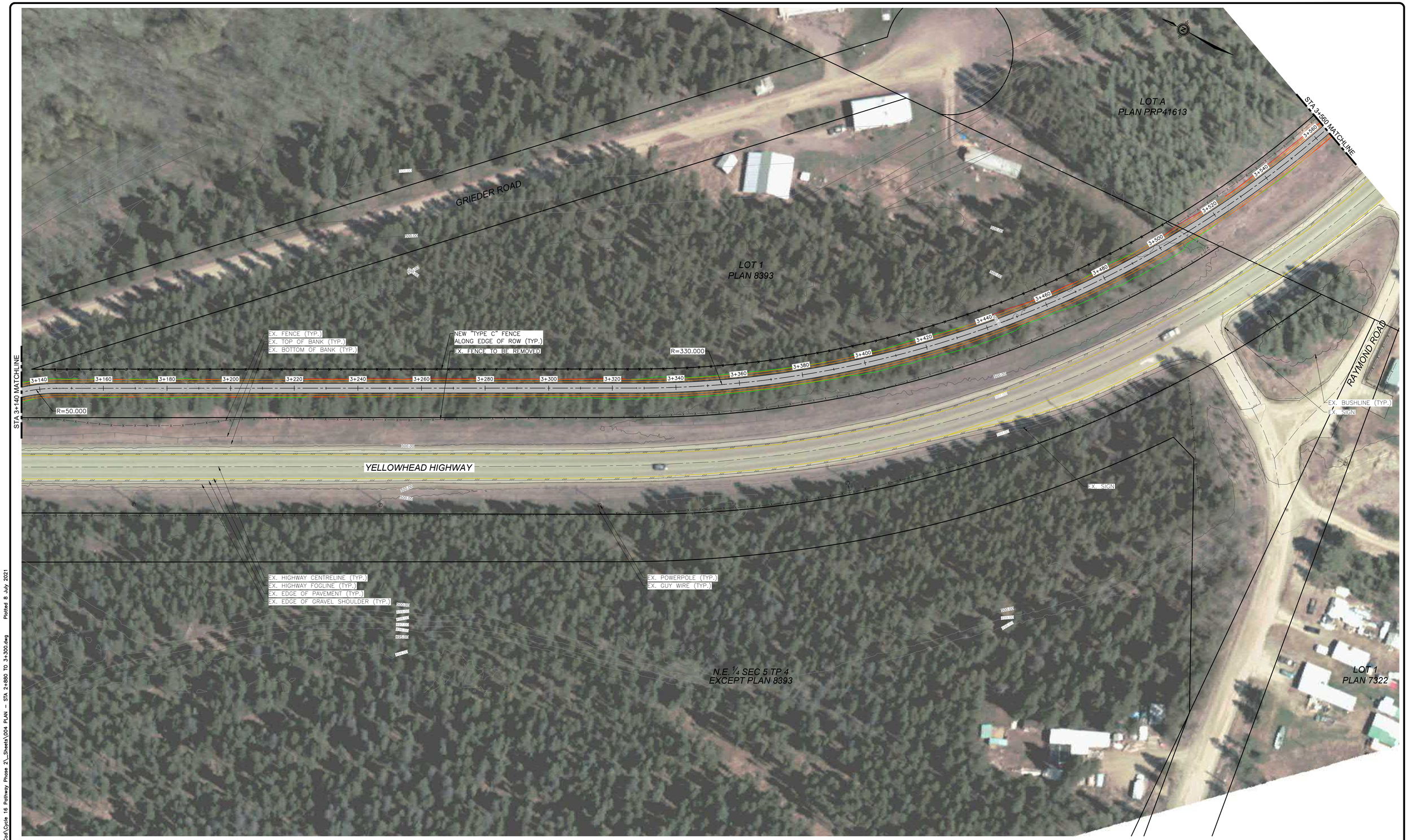
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. P. KINDRAT — 30192 — ENGINEER

wsp
#1-3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847-1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PLAN – STA 2+720 TO 3+140

REV. No. A
PROJECT No. 201-11400-01
DRAWING No. 003

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\003 PLAN - STA 2+460 TO 2+880.dwg Plotted 8 July 2021



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DATE	REV	DESCRIPTION	BY	APPR.

1:500 0 10 30m

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS, FIB FIBRE OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

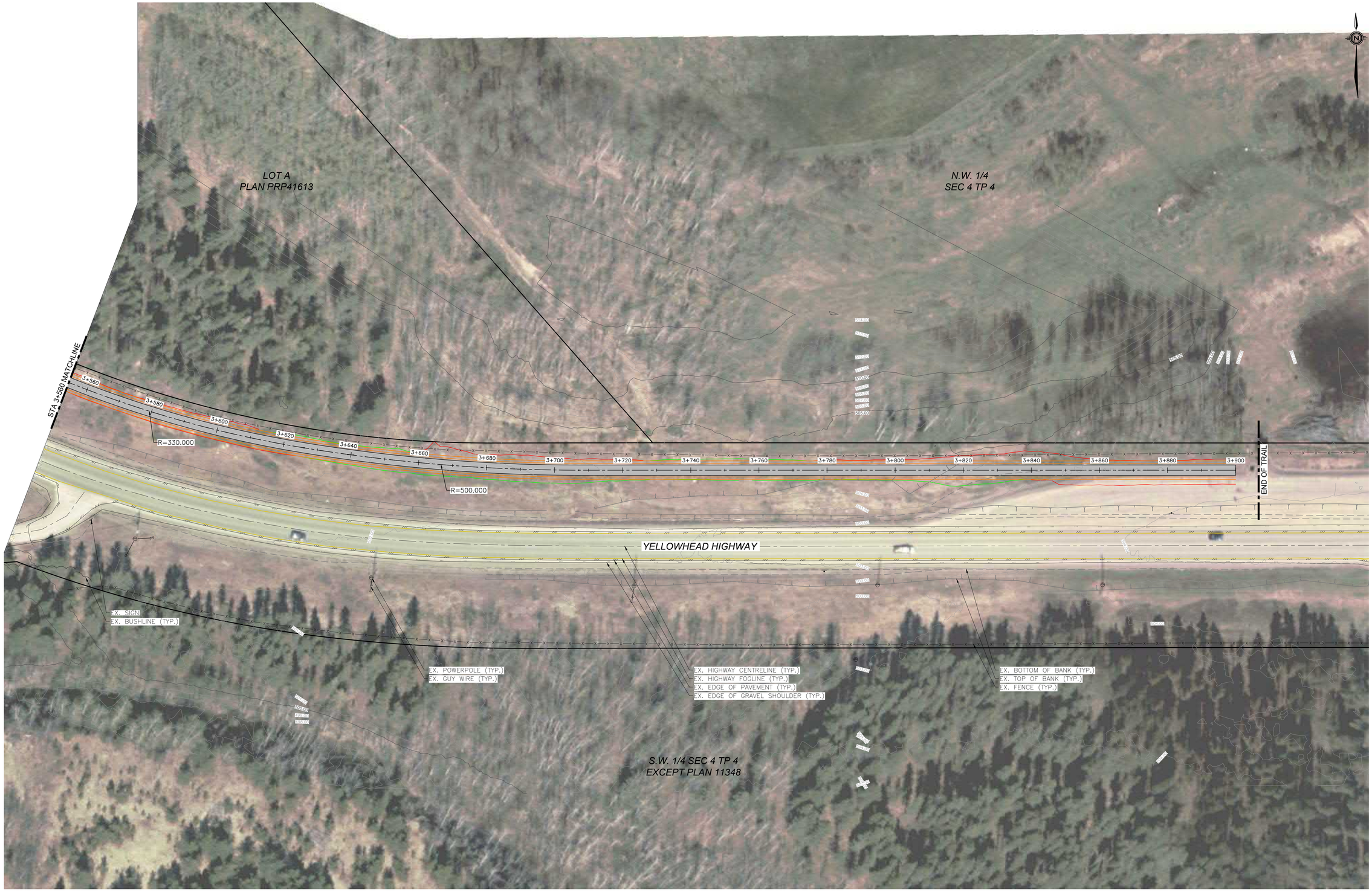
PROFESSIONAL ENGINEER — PROV. OF BRITISH COLUMBIA — 20-01275 — A. P. KINDRAT

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PLAN – STA 3+140 TO 3+560

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 004

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\004 PLAN – STA 2+880 TO 3+300.dwg Plotted 8 July 2021



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FOR APPROVAL 2021-07-08

1:500 — 0 10 30m

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

EXISTING / PROPOSED

SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	1:500
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — 2021-07-08 — A.P. KINDRAT

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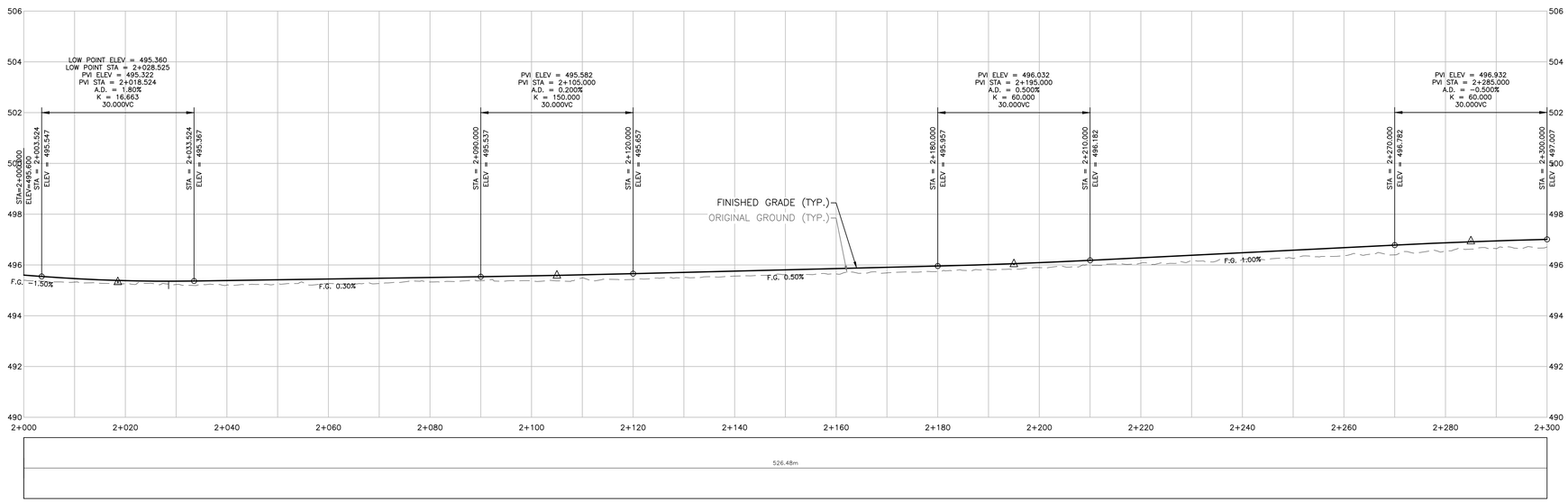
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PLAN – STA 3+560 TO 3+900

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 005

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\005 PLAN – STA 3+300 TO 3+645.dwg Plotted 8 July 2021



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DATE	REV	DESCRIPTION	BY	APPR.

0 10 H 1:500 30m
0 2 V 1:100 6m

EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIBRE OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	AS NOTED
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APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-08

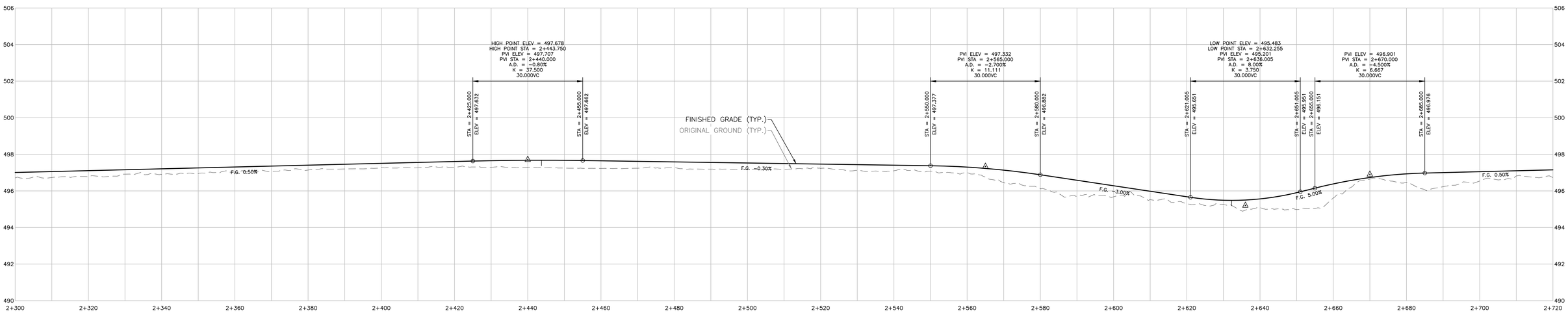
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT

PROFILE – STA 2+000 TO 2+300

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 006

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\006 PROFILE – STA 2+000 TO 2+300.dwg Plotted 8 July 2021



526.4m	CURVE DATA BC=2+526.477 EC=2+567.109 R=200.000 L=40.632m Δ=11°38'24"	80.36m	CURVE DATA BC=2+647.468 EC=2+658.247 R=25.000 L=10.779m Δ=24°42'12"	11.17m	CURVE DATA BC=2+669.417 EC=2+682.329 R=30.000 L=12.912m Δ=24°39'37"	127.67m

Plotted 8 July 2021

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\007 PROFILE – STA 2+300 TO 2+720.dwg

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0 10 H 1:500 30m
0 2 V 1:100 6m

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FOR APPROVAL 2021-07-08

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EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBER OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G UNKWN. PIPE, GAS GAS, FIB FIBRE OPTIC, H HYDRO, T TELUS, C CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

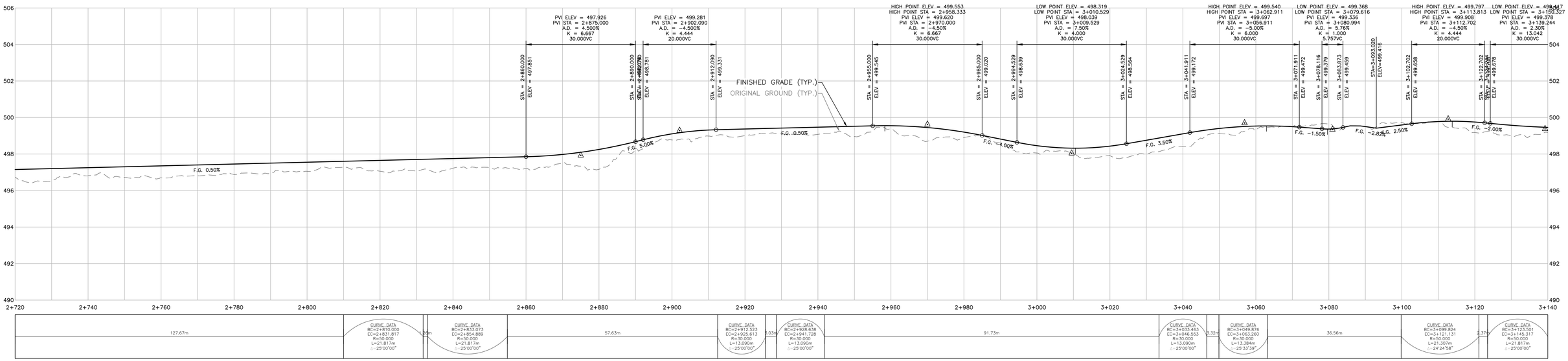
SCALE	AS NOTED
DATE	2021-07-08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-15

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PROFILE – STA 2+300 TO 2+720

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 007



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0 10 H 1:500 30m
0 2 V 1:100 6m

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FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
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EXISTING: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIB, H, T, C, UNKWN. PIPE, GAS, FIBER OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

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MONUMENT, SURVEY HUB, SURVEY HUB, CABLE SERVICE BOX, TEL SERVICE BOX, HYDRO SERVICE BOX, HYDRO VAULT, LOW PROFILE TRANSFORMER, TELEPHONE VAULT

SCALE	AS NOTED
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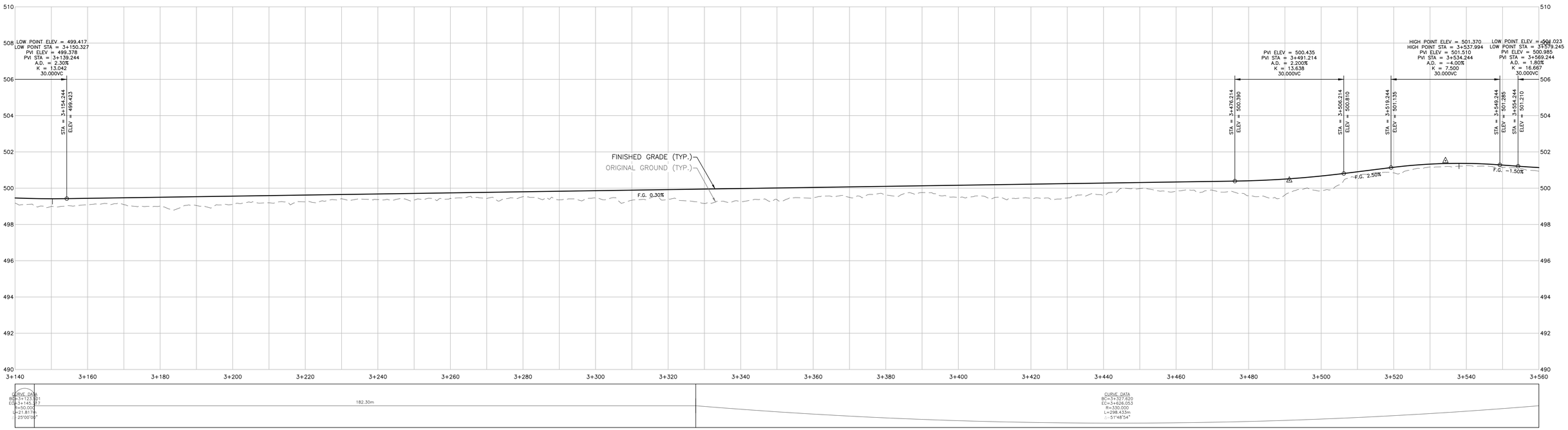
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-08

#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PROFILE – STA 2+720 TO 3+140

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 008

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\008 PROFILE – STA 2+720 TO 3+140.dwg Plotted 8 July 2021



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0 10 H 1:500 30m
0 2 V 1:100 6m

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PROPOSED: SANITARY, STORM, WATER, IRRIGATION, FORCEMAIN, FENCE, U/G, GAS, FIBRE OPTIC, HYDRO, TELUS, CABLE, EDGE OF GUTTER, EDGE OF PAVEMENT, EDGE OF GRAVEL, TOP OF SLOPE, BOTTOM OF SLOPE, BUSHLINE, SWALE, DITCH, CULVERT, HEADWALL, SIGNAGE, SPOT ELEV., SANITARY MANHOLE, LIFTSTATION, SANITARY CLEANOUT, INSPEC. CHAMBER (SAN.), STORM MANHOLE, CATCHBASIN MANHOLE, CATCHBASIN, STORM CLEANOUT, INSPEC. CHAMBER (STM.), FIRE HYDRANT, AIR RELEASE, GATE VALVE, CAP W/ BLOW-OFF, CURB STOP, DAVIT LAMP, POST-TOP LAMP, POLE W/ GUYWIRE, TEST PIT, MONITORING WELL

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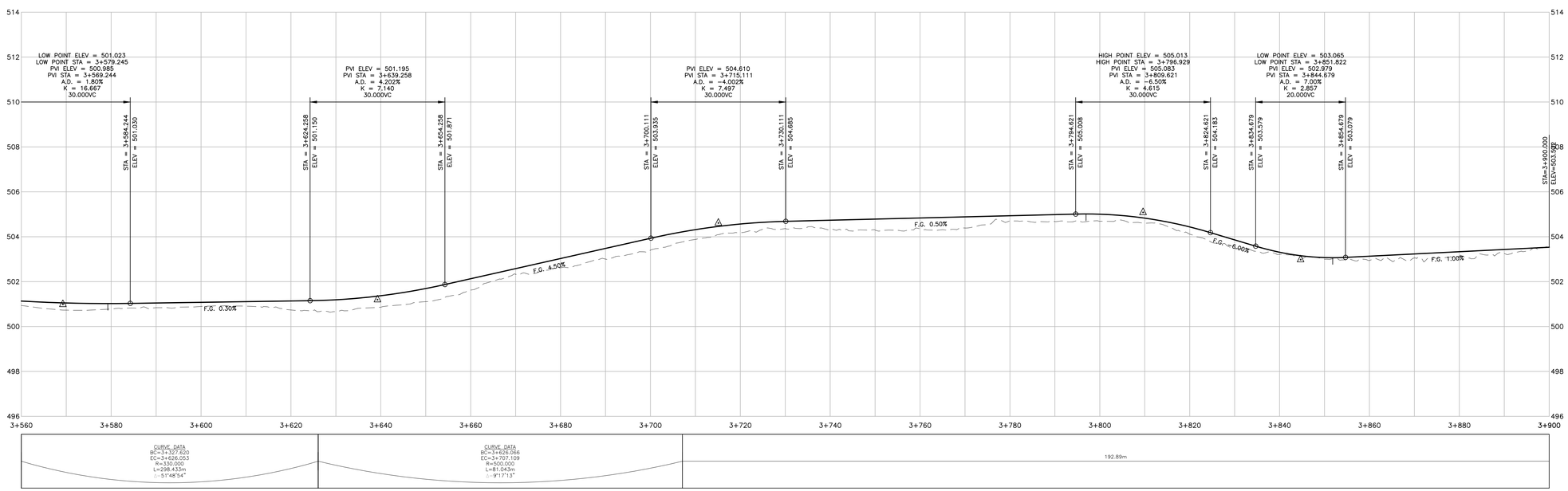
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-08

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PROFILE – STA 3+140 TO 3+560

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 009

N:\201-11400-01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2_Sheets\009 PROFILE - STA 3+140 TO 3+560.dwg Plotted 8 July 2021



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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-15

wsp
#1–3772 4TH AVENUE, SMITHERS, BC, V0J 2N0
PHONE (250) 847–1913

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
PROFILE – STA 3+560 TO 3+900

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 010

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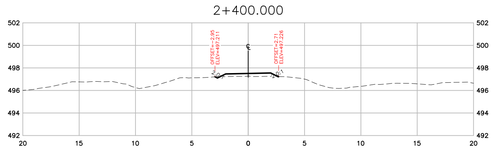

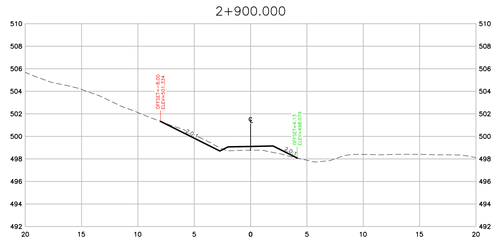

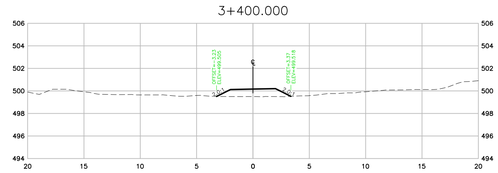

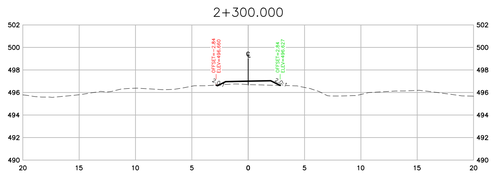

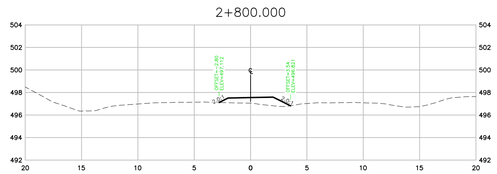

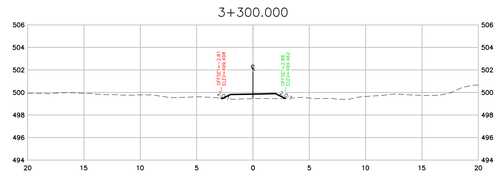

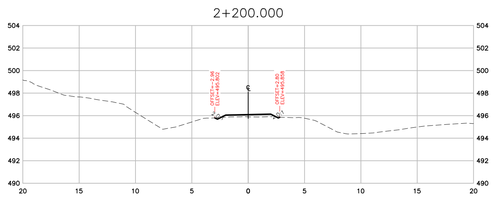

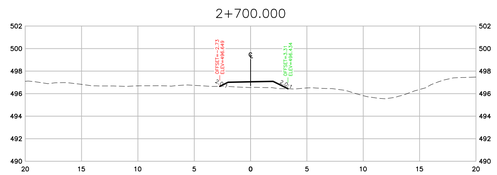

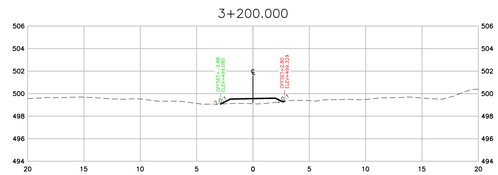

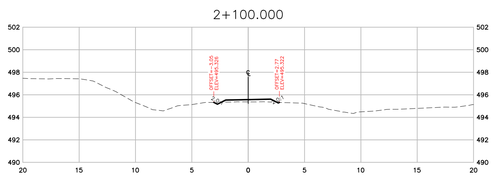

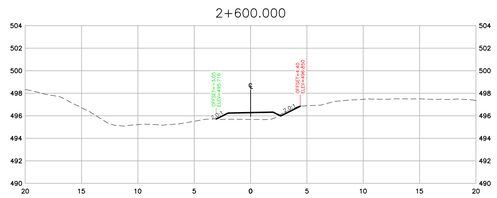

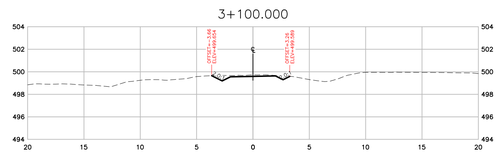

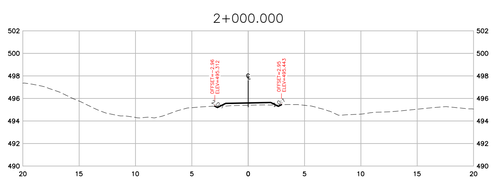

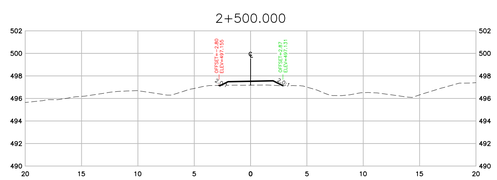

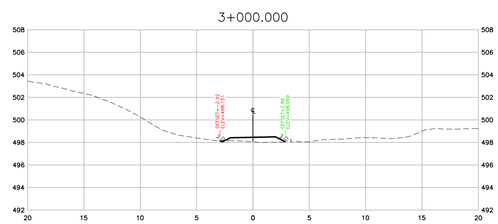

SECTIONS

1:250 0 5 15m

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"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

SCALE	1:250
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT

#420–301 VICTORIA STREET, KAMLOOPS, BC, V2C 2A3
PHONE (250) 374–5252 FAX (250) 372–8336

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
SECTIONS – STA 2+000 TO 3+400

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 011

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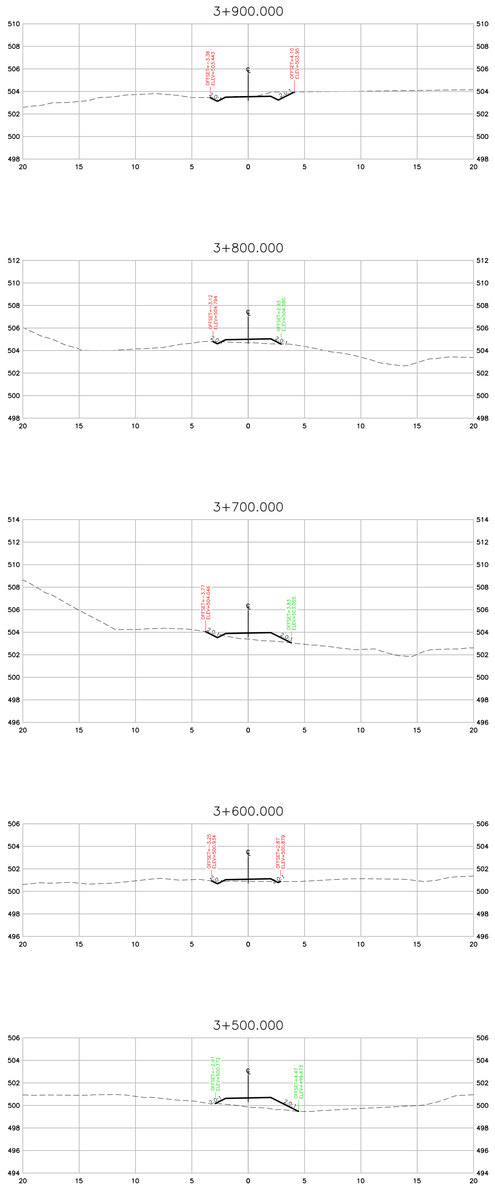

SECTIONS

1:250 0 5 15m

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"NOT FOR CONSTRUCTION"
FOR APPROVAL 2021-07-08

DATE	REV	DESCRIPTION	BY	APPR.
2021–07–08	A	ISSUED FOR APPROVAL	AIP	AK

DATE	REV	DESCRIPTION	BY	APPR.

SCALE	1:250
DATE	2021–07–08
APPROVED	AK
DESIGN BY	AIP
DRAWN BY	AIP
CHECKED BY	AK

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. P. KINDRAT 2021-07-08

wsp
#420–301 VICTORIA STREET, KAMLOOPS, BC, V2C 2A3
PHONE (250) 374–5252 FAX (250) 372–8336

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
CYCLE 16 – PHASE 2 FINAL SEGMENT
SECTIONS – STA 3+500 TO 3+900

REV. No. A
PROJECT No. 201–11400–01
DRAWING No. 012

N:\201–11400–01 Cycle 16 Trail\03 Cad\Cycle 16 Pathway Phase 2\201–11400–01 WD1 PH2.dwg Plotted 8 July 2021

APPENDIX

B

OPINION OF COST

Cycle 16 Phase 2 - Option 1

Overpass Cost Excluded

Class 'C' Cost Estimate (+/- 25-40%)

7/13/2021

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
SECTION 1.0 – GENERAL					
1.1	Mobilization / Demobilization	LS	1	$ 25,000.00	$ 25,000.00
1.2	Insurance & Bonding	LS	1	$ 5,500.00	$ 5,500.00
1.3	Traffic Control	LS	1	$ 10,000.00	$ 10,000.00
1.4	Environmental Management (Creek Crossing)	LS	1	$ 12,500.00	$ 12,500.00
1.5	Quality Management	LS	1	$ 15,000.00	$ 15,000.00
1.6	Construction Survey	LS	1	$ 15,000.00	$ 15,000.00
				SECTION 1 TOTAL	**$ 83,000.00**
SECTION 2.0 – CYCLE PATH CONSTRUCTION					
2.1	Clearing & Grubbing	m2	9,520.00	$ 4.00	$ 38,080.00
2.2	Stripping	m3	1,600.75	$ 10.00	$ 16,007.50
2.3	Common Excavation Cut & Remove from Site	m3	1,077.66	$ 18.00	$ 19,397.93
2.4	Common Excavation Cut & Place as Fill	m3	3,522.59	$ 22.00	$ 77,496.93
2.5	Supply and Install Retaining Wall	m2	275.00	$ 200.00	$ 55,000.00
2.6	75mm Minus SGSB - Road Structure (200mm thick)	m3	1,516.50	$ 40.00	$ 60,660.00
2.7	19mm Minus WGB - Road Structure (100mm thick)	m3	796.16	$ 50.00	$ 39,808.13
2.8	Supply and Place 50mm of Asphalt Pavement	tonne	630.00	$ 312.00	$ 196,560.00
2.9	Supply & Install Misc. CSP Road Crossing Culvert	EA	6.00	$ 1,500.00	$ 9,000.00
2.10	Supply & Install 10m long 1800mm CSP Culvert	EA	1.00	$ 15,000.00	$ 15,000.00
2.11	Hydroseeding	m2	9,520.00	$ 2.50	$ 23,800.00
2.12	Supply and Install Signs	LS	1.00	$ 10,000.00	$ 10,000.00
2.13	Fence Relocation	lm	725.00	$ 25.00	$ 18,125.00
				SECTION 2 TOTAL	**$ 578,935.48**
				SUBTOTAL (1)	**$ 661,935.48**
				Engineering Services (15%)	$ 99,290.32
				SUBTOTAL (2)	**$ 761,225.80**
				Contingency (25%)	$ 190,306.45
				TOTAL	**$ 951,532.25**

Cycle 16 Phase 2 - Option 2

Underpass Cost Excluded

Class 'C' Cost Estimate (+/- 25-40%)

7/13/2021

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
SECTION 1.0 – GENERAL					
1.1	Mobilization / Demobilization	LS	1	$ 24,000.00	$ 24,000.00
1.2	Insurance & Bonding	LS	1	$ 5,500.00	$ 5,500.00
1.3	Traffic Control	LS	1	$ 10,000.00	$ 10,000.00
1.4	Environmental Management (Creek Crossing)	LS	1	$ 12,500.00	$ 12,500.00
1.5	Quality Management	LS	1	$ 14,000.00	$ 14,000.00
1.6	Construction Survey	LS	1	$ 14,000.00	$ 14,000.00
				SECTION 1 TOTAL	**$ 80,000.00**
SECTION 2.0 – CYCLE PATH CONSTRUCTION					
2.1	Clearing & Grubbing	m2	10,200.00	$ 4.00	$ 40,800.00
2.2	Stripping	m3	1,572.25	$ 10.00	$ 15,722.50
2.3	Common Excavation Cut & Remove from Site	m3	1,477.49	$ 18.00	$ 26,594.78
2.4	Common Excavation Cut & Place as Fill	m3	384.26	$ 22.00	$ 8,453.78
2.5	75mm Minus SGSB - Road Structure (200mm thick)	m3	1,489.50	$ 40.00	$ 59,580.00
2.6	19mm Minus WGB - Road Structure (100mm thick)	m3	781.99	$ 50.00	$ 39,099.38
2.7	Supply and Place 50mm of Asphalt Pavement	tonne	616.90	$ 312.00	$ 192,473.19
2.8	Supply & Install Misc. CSP Road Crossing Culvert	EA	10.00	$ 1,500.00	$ 15,000.00
2.9	Supply & Install 4m long 1800mm CSP Culvert	EA	1.00	$ 7,500.00	$ 7,500.00
2.10	Hydroseeding	m2	10,200.00	$ 2.50	$ 25,500.00
2.11	Supply and Install Signs	LS	1.00	$ 10,000.00	$ 10,000.00
2.12	Fence Relocation	lm	1,045.00	$ 25.00	$ 26,125.00
2.13	Driveway Re-Alignment & Greieder Property	LS	1.00	$ 7,500.00	$ 7,500.00
2.14	Concrete Roadside Barriers	EA	10.00	$ 350.00	$ 3,500.00
2.15	6' High Privacy Fencing	lm	90.00	$ 225.00	$ 20,250.00
2.16	Relocate Small House, Landscape & Fencing	LS	1.00	$ 40,000.00	$ 40,000.00
				SECTION 2 TOTAL	**$ 538,098.62**
				SUBTOTAL (1)	**$ 618,098.62**
				Engineering Services (15%)	$ 92,714.79
				SUBTOTAL (2)	**$ 710,813.41**
				Contingency (25%)	$ 177,703.35
				TOTAL	**$ 888,516.76**

Cycle 16 Phase 2 - Final Segment

Class 'C' Cost Estimate (+/- 25-40%)

7/13/2021

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
SECTION 1.0 – GENERAL					
1.1	Mobilization / Demobilization	LS	1	$ 25,000.00	$ 25,000.00
1.2	Insurance & Bonding	LS	1	$ 6,500.00	$ 6,500.00
1.3	Traffic Control	LS	1	$ 12,500.00	$ 12,500.00
1.4	Quality Management	LS	1	$ 12,500.00	$ 12,500.00
1.5	Construction Survey	LS	1	$ 15,000.00	$ 15,000.00
				SECTION 1 TOTAL	**$ 71,500.00**
SECTION 2.0 – CYCLE PATH CONSTRUCTION					
2.1	Clearing & Grubbing	m2	8200	$ 4.00	$ 32,800.00
2.2	Stripping	m3	1815	$ 10.00	$ 18,145.00
2.3	Import General Fill (Utilize Cut from Option 1 of Option 2)	m3	638	$ 10.00	$ 6,380.00
2.4	Asphalt Removal	m2	3875	$ 17.50	$ 67,812.50
2.5	75mm Minus SGSB - Road Structure (200mm thick)	m3	1233	$ 40.00	$ 49,320.00
2.6	19mm Minus WGB - Road Structure (100mm thick)	m3	676	$ 50.00	$ 33,783.75
2.7	Supply and Place 50mm of Asphalt Pavement	tonne	712	$ 312.00	$ 222,129.18
2.8	Supply & Install Misc. CSP Road Crossing Culvert	EA	6	$ 1,500.00	$ 9,000.00
2.9	Hydroseeding	m2	8200	$ 2.50	$ 20,500.00
2.10	Supply and Install Signs	LS	1	$ 10,000.00	$ 10,000.00
2.11	Fence Relocation	lm	770	$ 25.00	$ 19,250.00
				SECTION 2 TOTAL	**$ 489,120.43**
				SUBTOTAL (1)	**$ 560,620.43**
				Engineering Services (15%)	$ 84,093.06
				SUBTOTAL (2)	**$ 644,713.49**
				Contingency (25%)	$ 161,178.37
				TOTAL	**$ 805,891.87**