From: Mitchell, Allan J TT:EX(Al.Mitchell@gov.bc.ca)
To: Vanessa.Klassen@gov.bc.ca, Klassen, Vanessa TT:EX
Subject: Emailing: 24-2017 Chadwick Pit_TIR Binder_DRAFT_2025-04-08_REDUCED.pdf
Sent: 07/23/2025 17:37:54
Attachments: 24-2017 Chadwick Pit_TIR Binder_DRAFT_2025-04-08_REDUCED.pdf

Hi Vanessa,

As discussed, attached is a draft copy of the Chadwick investigation report.

Thx,
Al

Your message is ready to be sent with the following file or link attachments:

24-2017 Chadwick Pit_TIR Binder_DRAFT_2025-04-08_REDUCED.pdf

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

1516 Robertson Ave.
Nelson, B.C.
V1L 1C6

April 8, 2025

Sitkum File No: 25-2017

Chadwick Pit
2025 Technical Information Report



Image 1: Google Earth planimetric image (July 2024) of Chadwick Pit and its surrounding area.

1.0 INTRODUCTION

Sitkum Consulting Ltd. (SCL) was requested by the Ministry of Transportation & Transit (MoTT) to provide an overview of the investigation and reconnaissance work conducted within Chadwick Pit in the West Kootenay District near Creston, B.C. The intent of the report is to help determine what remaining potential there is for future aggregate exploration and development. Chadwick Pit lies within property owned by the Crown Agency (MoTT) since 1962. The history of the pit is discussed in Section 2.0 below.

Chadwick Pit is located approximately 2 km south of Creston in the community of Erickson; see Image 1. Access is via Creston-Rykerts Highway 21, Goat River Road South and a Ministry right-of-way (R/W) through the neighbouring property to the west.

Goat River, a class S1 fish-bearing stream, flows along the south boundary of the Chadwick Pit property, both within and outside of the property boundary. A gravel

berm/dike has been constructed along the floodplain of Goat River to decrease the risk of flooding within the pit and nearby properties. CP Railway 42RY10 and its private tenure R/W lies just outside the west half of the north pit boundary. There is private property immediately adjacent to the north and west lot boundaries, except for the access road R/W, and untitled provincial property and unclassified property to the south and east of the pit boundary. See Images 2 and 3, and Photographs 5 to 9.

The legal description for the Chadwick Pit property is Lot 1, District Lot 812, Kootenay District Plan 4890. Given this parcel is owned by the Crown Agency, there is no Section 16 or Lands File number, and the tenure subtype is Fee Simple. The lot size is 24.1 hectares (ha) and the geographic position of the centre of the lot is:

Latitude 49.073943°, Longitude -116.482248°

UTM Zone11 537813.52 m Easting, 5435804.81 m Northing

2.0 PIT PROPERTY HISTORY

Chadwick Pit #0864 was originally pit #3905 and extended southeast and southwest to the south boundary of District Lot 812. Portions of the lot were returned to Crown in August 2022 based on the MoTT's Aggregate Pits website; see Image 2.

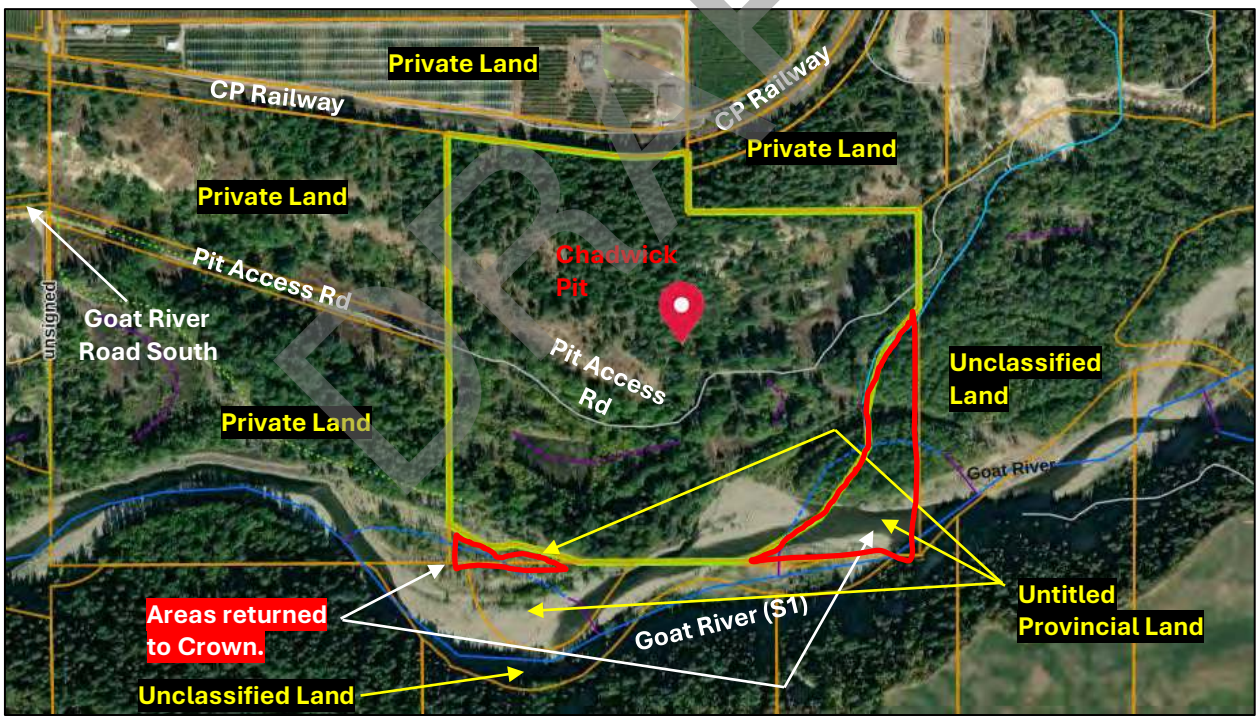


Image 2: Image of Chadwick Pit and its surrounding area from the MoTT's Aggregate Pit website. Note that Goat River stream is incorrectly mapped by the online government resources; refer to attached figures for the correct location. The Chadwick Pit property is outlined in green, with the areas in red returned to Crown.

Chadwick Pit was originally investigated in 1962, with 16 additional test pits completed in July 1994 by the Ministry of Transportation and Highways, and another 9 test pits completed by SCL in February 2025. As requested by the MoTT, the 2025 testing focussed

on the 1994 suitability area to determine the volume of remaining gravel. This report includes data from the Technical Investigation Report (TIR) for the 1994 testing, and 2025 field and lab test data completed by SCL and Walgrens Soil Testing respectively. However, other mining areas/exploration was evident during the 2025 site reconnaissance with several stockpiles, excavated scarps, hummocks and berms throughout the cleared, gentle gradient terrain in the southeast half of the property. The timbered, moderately steep to very steep gradient terrain in the northwest half of the property has not been tested or developed; see Image 3 and the Photograph 2 in Appendix A.

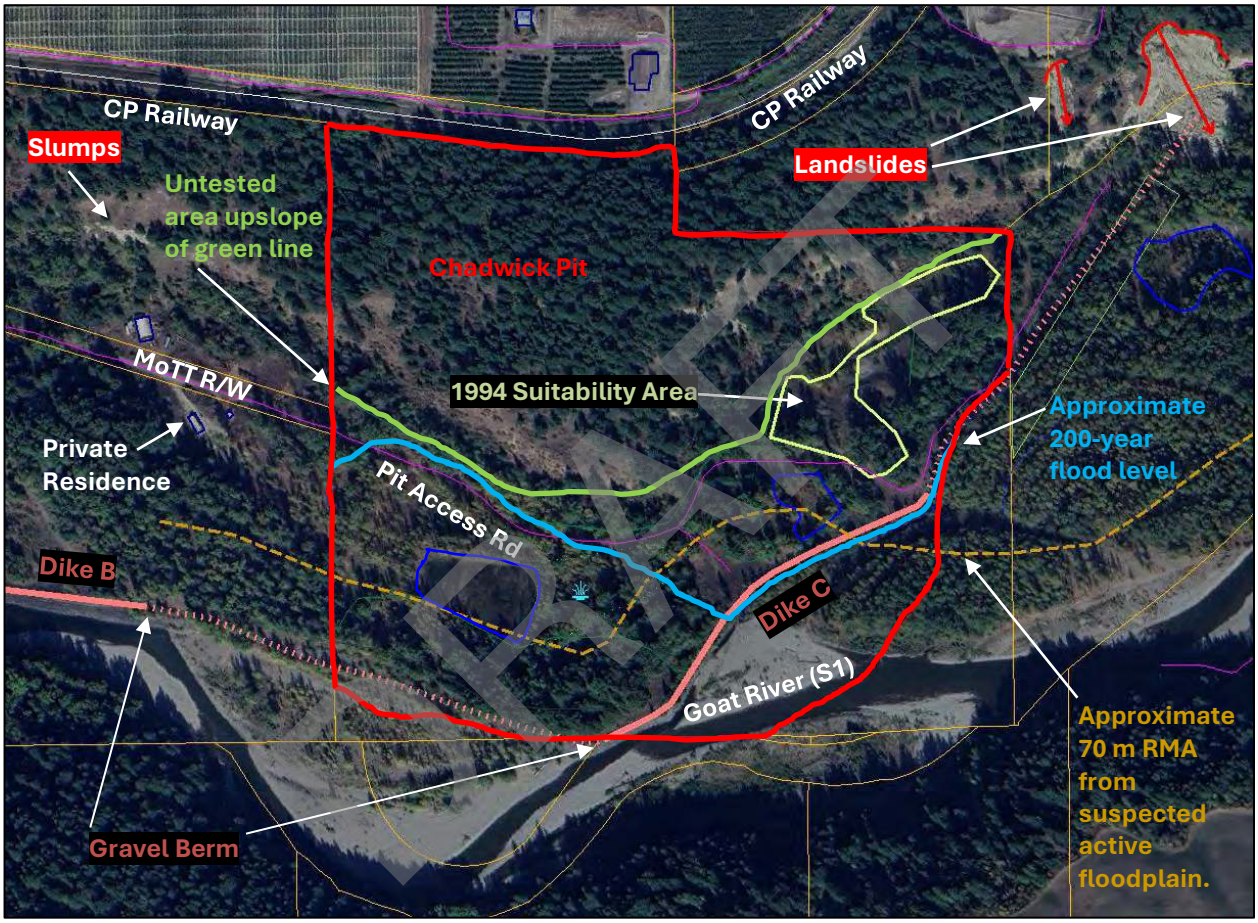


Image 3: Image of Chadwick Pit including flood protection structures and 200-year flood levels from referenced reports. The gravel berm in the southwest corner (dashed pink line) may be susceptible to overtopping during a 200-year flood event, and the area south of the blue line may experience flooding, typically 0.3-1.5 m, but could be >3 m; see footnote 2 on the next page. Standing water was present in the two ponds shown within the pit property, and there was also evidence of mineral staining indicating high water table/flooding on some of the surface rock near the ponds and within the 1994 suitability area; see Photos 3, 4, 12 and 13 in Appendix A.

The northwest part of the pit property upslope of the green line has gradients of 5-100%, but typically 60-80%, except for the small bench near the jig in the north property boundary; see attached topo map in Appendix B and Photograph 2 in Appendix A. This timbered area has not been tested. One test pit, TP 25-03, was excavated at the toe of the steep slope and the large landslide northeast of the property was investigated; see Photographs 10, 11, 22, 23 and 24. Both indicated significant fine soils, which when combined with the evidence of instability on the steeper terrain to the east and west of the pit, and the railway at the top of the steep slope, make development of this area unsuitable.

Due to historical flooding along the Goat River, an extensive diking system has been constructed through the Creston Valley beginning in the 1930s. Dike extensions were constructed in 2006 and 2007 including within the Chadwick Pit property, and there is annual maintenance that occurs along the diking system; see Image 3, Photographs 5 to 7, and the attached figures. The Regional District of Central Kootenay and the Town of Creston have completed a floodplain and steep creek study and flood risk assessments respectively; see Section 6.0 for the referenced reports. An approximately 350 m section of gravel berm (dike) within the southwest part of the pit property has been identified by WSP Canada Inc. as having "an unknown ability to withstand a flood"[1]. BGC Engineering Inc. also notes that the dikes and berm in this area have potential for overtopping under a 200-year flood on Goat River (accounting for climate change), and that "some flooding occurs due to flow around the dikes from upstream (east) of the dikes"[2], approximately 255 m northeast of the pit property near the large landslide; see Photograph 11. Based on the BGC 200-year flood mapping, the south part of the property is susceptible to flooding up to the pit access road in the west half of the pit. Discussions with the neighbour to the west (Brad Wilson), indicated that the water frequently rises to the road, and the pond in this area appeared to be at least 0.5 m deep under the ice in January 2025. For further details regarding Dike C (including its extension) and the gravel berm in the southeast and southwest portions of the pit respectively, see the referenced reports, in particular Section 3.3.2 of the RDCK Report[2].

3.0 TESTING RESULTS & VOLUME ESTIMATES

- The 1994 testing identified a suitability area of 0.9 ha with clean, poorly graded sandy gravel in the northeast part of the gentle bench. The estimated volume was 39,000 m3 at the time based on the water table depth and pit face height based on an average water table depth of 2.8 m. See the referenced TIR for more information. In 2000, approximately 6,500 m3 of SGSB was mined for arrestor bed material within this suitability area, with five piles of oversize and undersize material stockpiled on the site along with several overburden and woody debris piles throughout the pit.
- The 2025 testing was completed February 18 with approximately 3-6" of snow onsite. The lower pit floor area mined in 2000 is centrally located within the suitability area and includes test pits 94-06, 94-15, 94-16, 25-04, and 25-06. Based on mineral staining on the surface rock and water table levels at less than 0.4-0.65 m, this area has been completely mined out. The five reject stockpiles from the arrestor bed mining were not lab tested, however, it's unlikely that the estimated 1,450 m^3 of oversize and 1,700 m^3 of undersize would be crushed/reprocessed in the future.

[1] Last paragraph of Section 2.1 (Pg 4), and Sheet 3 Overview Map of Creston Valley in Appendix A, of referenced WSP Town of Creston report. Note that the referenced BGC report notes the gravel berm section as 370 m long, as shown on the SCL attached figures.

[2] Table E-1 Flood Protection Structures (Dikes) section (Pg iii), Section 3.3.2 Dikes including Figure 3-7 which was used for SCL flood protection mapping, and Sheet 2 of the 200-Year Flood Hazard Maps in the Drawings of the referenced BCG RDCK report.

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- Two small areas southwest (0.5 ha) and northeast (0.2 ha) of the lower pit floor haven't been completely mined out. These areas include test pits 94-04, 94-05, 25-01, 25-02, 25-03, and 25-05, and 94-13 and 25-07 respectively. Lab testing indicates well to poorly graded sands and gravels with some silts (typically 5-11% fines). Water table was encountered at 2.1-3.6 m except at the base of the steeper slope but was low at the time of testing. Factoring in the water table fluctuations, fines and oversize, it's estimated that ≤10,000 m^3 of volume remains in these areas which would be difficult to develop.
- The remaining test pits either tested poorly with high fines, had significant overburden, and/or were shallow to water table. Refer to the photographs in Appendix A, the figures and test pit logs in Appendix B, and the lab test results in Appendix C.

4.0 DISCUSSION AND SUMMARY

- Portions of the Goat River, its floodplain, and riparian management area (RMA) fall within the pit property boundary. Goat River requires a 50 m riparian reserve zone (RRZ) plus a 20 m riparian management zone (RMZ) for a total RMA width of 70 m minimum on each side of the stream or to the extent of the active floodplain. There are additional watercourses on the floodplain including the mapped NCDs which could possibly be streams requiring further RMAs. The RMA shown in Image 3 and on the attached figures is only an estimate.
- The gravel berm in the southwest part of the property may be subject to overtopping and/or failure during high flood levels based on the referenced reports. This 350-370 m section of the diking system was not reviewed by SCL during the January 2025 reconnaissance. It's unclear whether additional maintenance or dike works have been completed since the 2006 and 2007 dike extensions.
- **The northwest half of the property is not recommended for development** due to moderately steep to very steep terrain, significant fines, and the potential for slope instability based on nearby landslides and slumps downslope of the CP railway.
- **Other gentle gradient terrain outside of the 2025 test area appears to have been mined out**, with two ponds on the bench, the Goat River floodplain on the south side of the gravel berm and Dike C, as well as several small scarps where contractors were searching for suitable materials.
- **The two small areas that have not been mined out are not recommended for further development** due to pockets and layers of fine sand and silt throughout the test area, fluctuations in the water table and potential for flooding, and high development costs. If developed, movement of stockpiles and overburden, as well as some timber removal, grubbing and stripping would be required. **However, other gravel pits in the area are less cost prohibitive for development.**

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5.0 CLOSURE

Discussions and recommendations presented above are based on a field investigation, laboratory analysis, and on additional information provided by the Ministry of Transportation & Transit, which was reviewed at the time of this assessment. This report has been prepared for use by the Ministry of Transportation & Transit, which includes distribution as required for purposes for which the assessment was commissioned. The assessment has been carried out in accordance with generally accepted geotechnical practice. Geotechnical judgment has been applied in developing the recommendations in this report. No other warranty is made, either expressed or implied.

Sitkum trusts that the information presented above meets your current requirements. If you have any questions, or require further information, please do not hesitate to contact the undersigned.

Respectfully submitted,

Sitkum Consulting Ltd.

EGBC Permit to Practice no. 1000441

Prepared by:

Reviewed by:

DRAFT

Karen Anderson
Eng.Tech.

Wayne Miller, P.Geo. P.L.Eng.
Engineering Geologist – Principal

6.0 REFERENCES

BGC Engineering Inc., March 2020. RDCK Floodplain and Steep Creek Study Goat River. BGC Project No. 0268007, BGC Document No. RDCK2-CW-001F. Prepared for Regional District of Central Kootenay. Weblink: https://rdck.ca/wp-content/uploads/2024/11/2020-07-17-Goat_River-FINAL.pdf.

WSP Canada Inc. April 2023. Professional Engineering Services for the Creston Valley Flood Risk Assessment, Risk Assessment Update. WSP Project No. 221-08591-00. Prepared for Town of Creston.Weblink: https://www.rdck.ca/assets/Services/Emergency~Management/Documents/WSP%20Risk%20Assesment%20Update%20(Phase%201)%20-%202023%20.pdf .

Ministry of Transportation and Highways, Kootenays Regional Office, Geotechnical & Materials Engineering, January 1995. Chadwick Pit No. 3905 (0864) Development Recommendations Memorandum.

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APPENDIX A

PHOTOGRAPHS

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Photograph 1: End of Goat River Road South and public access. Note the double row of CRB (left of the truck) allowing pedestrian access only and the private gate and driveway (right side of the CRB), as well as the restricted access signage.



Photograph 2: View of moderately steep to very steep slope in the northwest half of the pit property and eastwards along the pit access road. Photo taken from just beyond the MoTT locked gate and the pit entrance on the west boundary. Overburden is often stockpiled along the north side of the road here and sometimes along the toe of the steeper slope.

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Photograph 3: Small pond in what appears to be the old crusher location based on previous PDP maps and used for the arrestor bed mining. There is a log deck of decaying deciduous (cottonwood) up against the base of Dike C at the south edge of the pond/crusher area.



Photograph 4: Large pond in the southwest part of the pit property, just south of the pit access road. The pond appeared to be at least 0.5 m deep in the west end and shallower towards the east. The neighbour, Brad Wilson, indicated that the pond rises and floods the access road often; however, the flood mapping completed by BGC indicates the floods may rise to the road only occur during 200-year flood levels. This area appeared to be mined out along with the area towards the west boundary.

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Photograph 5: Looking south-southwest at what is likely the gravel berm (dike) discussed in the referenced reports. The berm is in the right background and partially covered in snow. The photo was taken along the fence line and timber edge near an existing trail in the southwest corner of the pit boundary. The fence line appears to border the floodplain and diking system throughout most of the pit property.



Photograph 6: Intermittent NCD, or possible stream along the toe of Dike C and the edge of the Goat River floodplain. The south edge of the dike is well armoured with rock. The large landslide east of the pit is visible in the background.

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Photograph 7: Looking downstream at Dike C just west of where the Goat River floodplain ends and the intermittent NCD and braid around the sandbar confluence with Goat River as shown in Photograph 9 below. The fence is located at the top of the armouring and a rough trail appears to continue along the top of the dike. Where the river corners in the background is roughly where Dike C ends and the gravel berm begins.



Photograph 8: Dry section of NCD, or possibly stream, along the toe of Dike C and floodplain edge. The shovel marks the top of a small beaver dam. A few of these small beaver dams were observed along the intermittent NCD/stream.



Photograph 9: Downstream view from where the Goat River enters the south property boundary. Note the river braids around a large sandbar when water levels are low, but floods the sandbar and the adjacent river floodplains during peak flow years.

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Photograph 10: Looking up at the large landslide scarp east of the Chadwick Pit property from the deposit piles. The fine soils throughout the instability are likely to occur in the steeper terrain within the northwest part of the pit boundary.



Photograph 11: Looking downslope from near the base of the scarp at what is likely the top east end of the diking system, and the 2006/2007 Dike C extension. The armoured slope of the dike is visible on the right side of the photo. There is an existing trail/old road that traverses across the landslide debris and onto the Goat River floodplain near the toe of the dike before curving south and across the floodplain. This portion of the floodplain is timbered and appears inactive.



Photograph 12: Mineral stained rocks in the mined area west of the large pond indicate higher groundwater/flooding as noted in the referenced BGC report.



Photograph 13: Mineral stained rocks in the east end of the lower pit floor near TP 64-15. The arrestor bed mining likely stopped at the water table although it is 0.4-0.65 m deeper during the February 2025 testing. Note the overburden berm along the toe of the steeper terrain and a few small woody debris piles in this end of the lower pit floor.

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Photograph 14: Top of one of the large oversize stockpiles left on the lower pit floor during the arrestor bed mining. The middle pile directly behind this pile is also oversize, while the pile to the right in the background is undersize, see Photograph 15, and the large and small piles to the left are overburden.

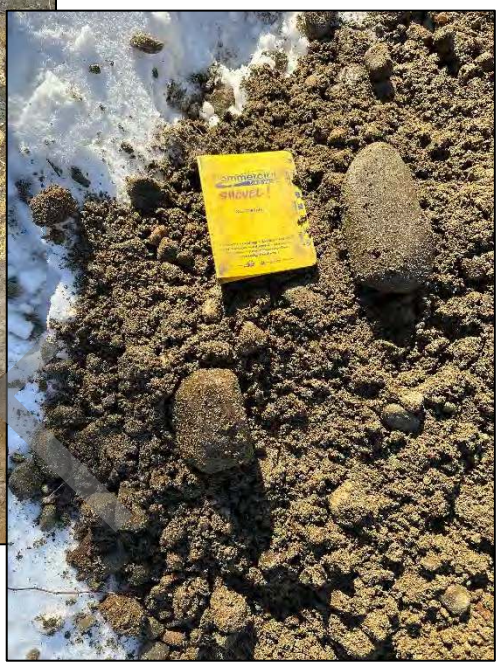


Photograph 15: Close up of the undersize material stockpiled on the lower pit floor from the arrestor bed mining. Another smaller pile of undersize is located by TP 25-01 on the bench above.

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Photograph 16: Test Pit 25-01 in the west end of the 1994 suitability area. The top 1.1 m is a SW-SM with 11% fines, and the remaining material is an SP down to the water table at 2.4 m.



Photograph 17: Sandy materials and largest oversize within TP 25-01.



Photograph 18: TP 25-01 located on bench above the lower pit floor between the small stockpile of undersize from the arrestor bed mining and a pile of woody debris. The truck in the left background is parked on the pit access road.

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Photograph 19: Test Pit 25-02 located on an existing trail within patchy timber on the bench west of the arrestor bed mining. This area requires some timber clearing, grubbing and stripping if developed. Note the disturbed hummocky terrain in the background.



Photograph 20: TP 25-02 is a GW-GM with 7% fines and 0.6 m of topsoil/overburden to strip. The water table was encountered at 2.7 m.



Photograph 21: Oversize from TP 25-02, the largest of which was 250 mm. Note the size relative to the gravel sample bag and clipboard.

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Photograph 22: Test Pit 25-03 at the toe of the steeper slope just west of the 1994 suitability area. Note the disturbed hummocky terrain behind and to the right of the test pit leading towards TP 25-02.



Photograph 23: The upper 1.8 m below the topsoil is the silt -fine sand mix that likely exists in most of the steeper terrain in the northwest part of the property. The lower 3 m of the test pit is a GP GM with 10% fines. Although water table was not encountered, the soils at pit bottom (5.1 m) were moist.



Photograph 24: Largest oversize from TP 25-03 which was 330 mm.

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Photograph 25: Test Pit 25-04in the west end of the lower pit floor encountered the water table at 0.65 m. The material is a GP and fairly clean indicating the water table is higher at times.



Photograph 26: Clean GP with some oversize up to 220 mm present. Note the overburden berm extends along the toe of the steeper slope all the way along the lower pit floor as seen in the photo background. The OB and stockpiles were mapped on the attached figures.

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Photograph 27: Test Pit 25-05 just off the trail leading from the lower pit floor to the bench above. This test pit is between the oversize stockpile from the arrestor bed mining and two of the overburden piles. This pit had some thin interbedded layers of gravel <300 mm thick with mostly sandy materials. The water table was encountered at 2.1 m.

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Photograph 28: TP 25-05 tested as SP-SM with 7% fines. The largest oversize is 290 mm as seen in the photo.



Photograph 29: Test Pit 25-06 in the east end of the lower pit floor encountered water table at 0.4 m.



Photograph 30: The largest oversize in TP 25-06 is 240 mm, however most of the oversize is 75-150 mm and was estimated at 10%.



Photograph 31: The material in TP 25-06 is a clean GW indicating the water table is often higher.



Photograph 32: Test Pit 25-07 on the terrace just east of the lower pit floor. This area has been partially cleared of timber, grubbed and stripped, but will likely require more preparation if mined further. Water table was encountered at 3.1 m and the largest oversize was 190 mm in the bottom of the pit where the percent of oversize increased.



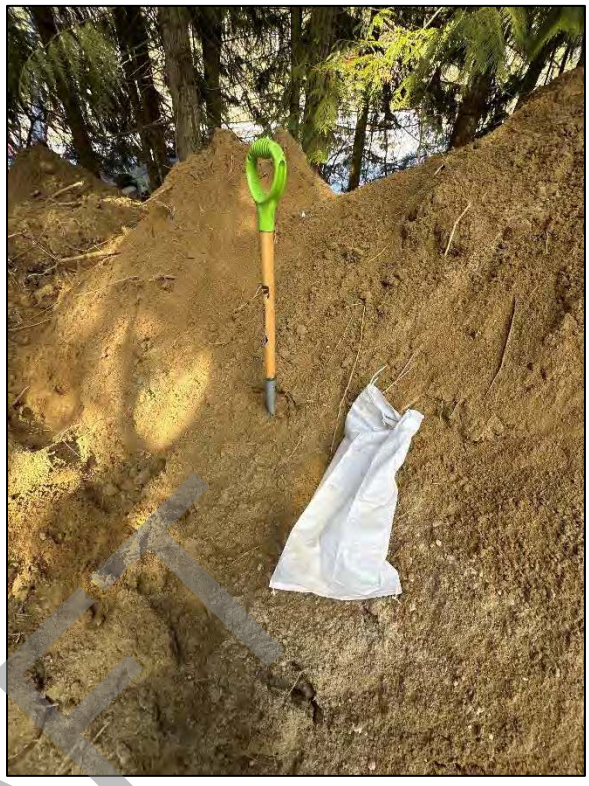
Photograph 33: Test Pit 25-07 sample A, a GP.



Photograph 34: Test Pit 25-07 samples B (foreground) and C (background), an SP and GW respectively.



Photograph 35: Test Pit 25-08 located in a small opening amongst the timber just north of the pit access road. The area was hummocky and appeared disturbed, but no litter layer was noted within the pit profile.



Photograph 36: Fine sand or silt-sand material (SM2) with 29% fines down to 2.5 m, where it's suspected the water table often rises to. The water table was encountered at 2.7 m.



Photograph 37: The GP at the bottom of the pit was not tested as it is mostly below the water table. The largest oversize is 200 mm as shown in the photo.

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Photograph 38: Test Pit 25-09 located on an existing trail just south of the 1994 suitability area. Water table was encountered at 2.1 m.



Photograph 39: Below the thin layer of topsoil (0.1 m), the upper 1.3 m is an SM2 with 29% fines, while the lower 1.1 m is a GP-GM with 10% fines.



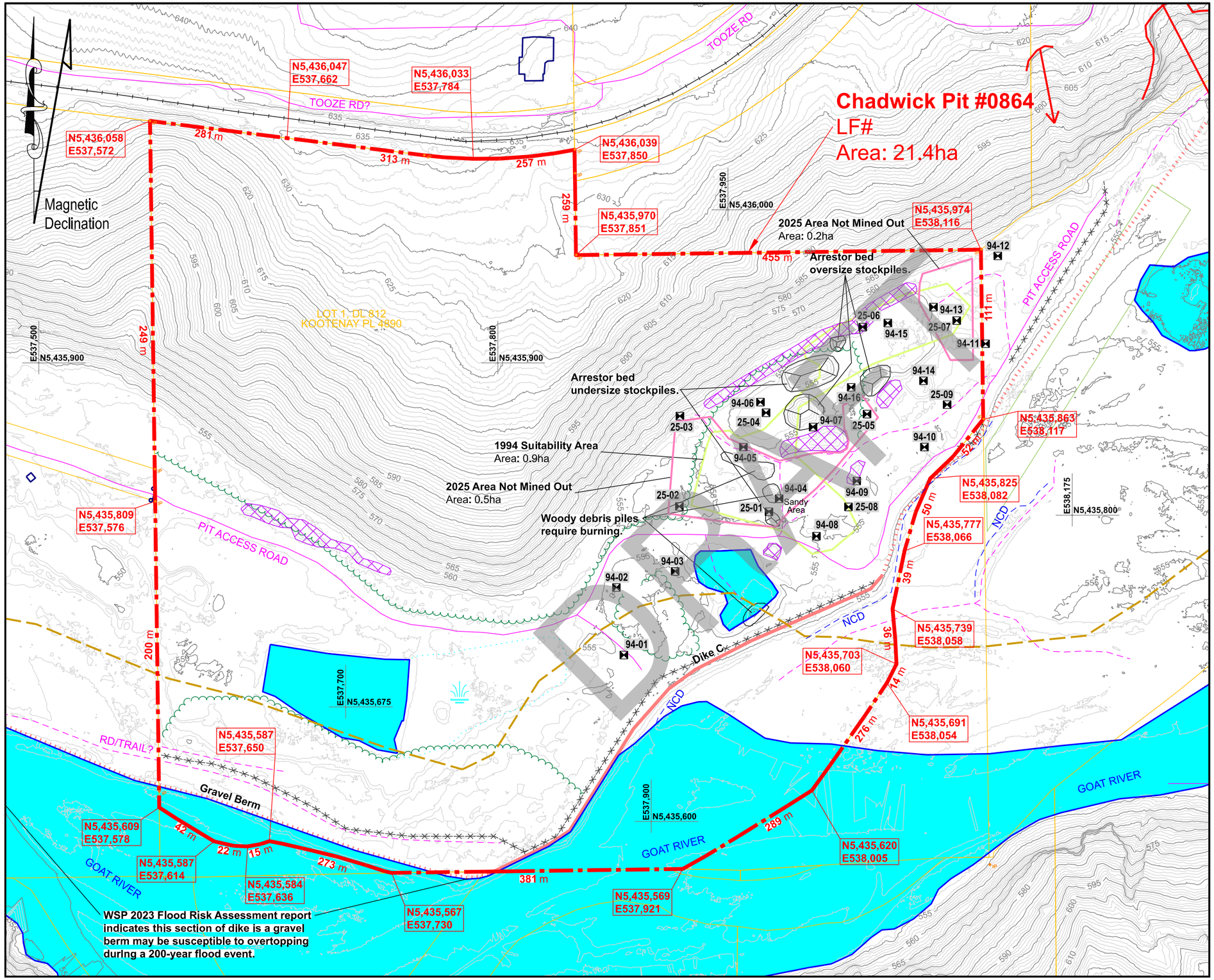
Photograph 40: Thick root mass in TP 25-09 similar to TP 25-08. The oversize increases significantly in size and percent in the lower layer, with the largest being 280 mm, however most of the oversize is 75-150 mm.

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APPENDIX B

FIGURES & TEST PIT LOGS

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PIT DEVELOPMENT LEGEND

- NATURAL EMBANKMENT
- PIT FACE
- TEST PIT
- TEST HOLE
- TRAIL
- ROAD
- CREEK
- NON-CLASSIFIED DRAINAGE (possible intermittent stream)
- RIPARIAN MANAGEMENT AREA (estimated)
- CADASTRE
- TANTALIS
- GRAVEL RESERVE BOUNDARY
- DEVELOPMENT EXPANSION AREA
- FLOOD PROTECTION STRUCTURE (source BC MFLNRO, 2017)
- DIKE EXTENSIONS (designed by AMEC, 2007)
- 1994 SUITABILITY AREA
- 2025 AREA NOT MINED OUT
- LANDSLIDE
- TREELINE
- CONTOURS
- BUILDING
- IRON PIN
- SWAMP
- STOCKPILE
- NO DISTURBANCE
- OVERBURDEN STOCKPILE
- CRUSHER LOCATION
- GATE
- SIGN
- FENCE
- TRANSMISSION LINE
- PIPE LINE
- RAILWAY LINE

DRAWING NOTES:

1. Base data provided from Trim Map 82F008 from Data BC and LiDAR (1m Contours, 2018) from Lidar BC.
2. Cadastre and Tantalis Lines were provided from online sources.
3. Some test pits and/or test holes may not be representative of current conditions due to development and excavation done after testing. Test pit locations geospatially referenced from 2005 PDP and may be slightly inaccurate due to shift.
4. Some extraction may have occurred since the last survey of the pit was undertaken, therefore pit faces and stockpiles may not be representative of current conditions.
5. The Goat River location has been amended within the map area based on a combination of the 2019 survey for the RDCK, ortho imagery and the SCL 2025 field review. The river edges include the suspected active floodplain, but the river may flood up to the diking system.
6. The flood protection structures are mapped from the 2020 BGC report for the RDCK. Solid linework originally sourced from BC MFLNRO, 2017. Dotted linework are dike extensions designed by AMEC, 2007; however the portion in the southwest of the pit is a gravel berm.
7. The 70 m riparian management area is only an estimate.

PIT DEVELOPMENT NOTES:

1. Any further pit development must be carried out in accordance with the Health, Safety, and Reclamation Code for Mines in BC, the current Standard Specifications for Highway Construction, and the Aggregate Operations Best Management Practices Handbook for BC.
2. Any future development to be determined by MoTT.
3. Majority of the 2025 test area has been cleared, grubbed and stripped, except for between test pits 25-02 and 25-03, and surrounding 25-08.
4. Stockpiles of undersize, oversize, woody debris and overburden throughout the potential development area.
5. Pit excavations must not take place to within a minimum distance of 2m from the edge of clearing & stripped areas. Additional buffers to private land boundaries should be implemented.
6. When the contractor discontinues operations in the pit, all working pit faces and stockpiles must be trimmed to 1.5H to 1V slope. Working pit faces must be reshaped with native granular materials. All other permanent slopes must be re-sloped to no steeper than 2H:1V.
7. No dumping of debris or petroleum products is permitted. The pit must be left in a clean and safe condition.

0m 25 50 75 100

1 : 2,500

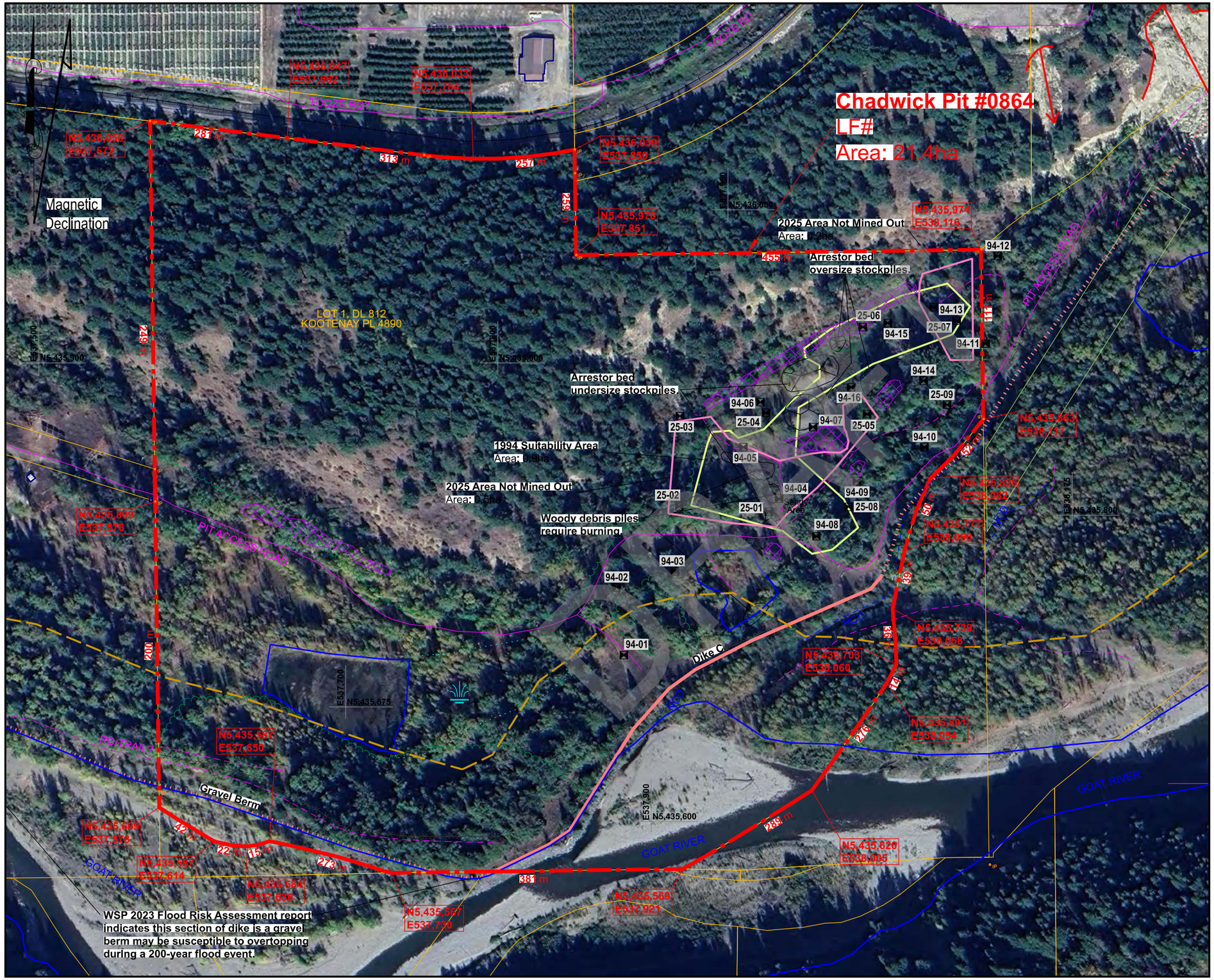
Ministry of Transportation and Transit
Southern Interior Region
Geotechnical and Materials Branch

PIT DEVELOPMENT PLAN
CHADWICK PIT #0864
SA 10 - WEST KOOTENAY DISTRICT

DRAWN BY: K.Anderson	PROJECTION: UTM Zone 11	SCALE: AS SHOWN
CHECKED BY: W.Miller	DATUM: NAD83	DATE: 8 April 2025
FILE NAME: chadwick_no0864_devplan_2025-04-08.dgn	REG. 1	DRAWING NUMBER: FIGURE 2

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This drawing was originally produced in colour.



PIT DEVELOPMENT LEGEND

- NATURAL EMBANKMENT
- PIT FACE
- TEST PIT
- TEST HOLE
- TRAIL
- ROAD
- CREEK
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- GRAVEL RESERVE BOUNDARY
- DEVELOPMENT EXPANSION AREA
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6. The flood protection structures are mapped from the 2020 BGC report for the RDCK. Solid linework originally sourced from BC MFLNRO, 2017. Dotted linework are dike extensions designed by AMEC, 2007; however the portion in the southwest of the pit is a gravel berm.
7. The 70 m riparian management area is only an estimate.

PIT DEVELOPMENT NOTES:

1. Any further pit development must be carried out in accordance with the Health, Safety, and Reclamation Code for Mines in BC, the current Standard Specifications for Highway Construction, and the Aggregate Operations Best Management Practices Handbook for BC.
2. Any future development to be determined by MoTT.
3. Majority of the 2025 test area has been cleared, grubbed and stripped, except for between test pits 25-02 and 25-03, and surrounding 25-08.
4. Stockpiles of undersize, oversize, woody debris and overburden throughout the potential development area.
5. Pit excavations must not take place to within a minimum distance of 2m from the edge of clearing & stripped areas. Additional buffers to private land boundaries should be implemented.
6. When the contractor discontinues operations in the pit, all working pit faces and stockpiles must be trimmed to 1.5H to 1V slope. Working pit faces must be reshaped with native granular materials. All other permanent slopes must be re-sloped to no steeper than 2H:1V.
7. No dumping of debris or petroleum products is permitted. The pit must be left in a clean and safe condition.

0m 25 50 75 100

1 : 2,500

Ministry of Transportation and Transit
Southern Interior Region
Geotechnical and Materials Branch

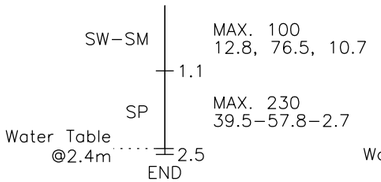
PIT DEVELOPMENT PLAN
CHADWICK PIT #0864
SA 10 - WEST KOOTENAY DISTRICT

DRAWN BY: K.Anderson	PROJECTION: UTM Zone 11	SCALE: AS SHOWN	
CHECKED BY: W.Miller	DATUM: NAD83	DATE: 8 April 2025	
FILE NAME: chadwick_no0864_devplan_2025-04-08.dgn	REG. 1	DRAWING NUMBER: FIGURE 2	

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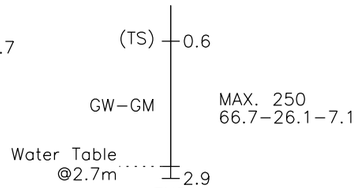
This drawing was originally produced in colour.

TP25-01



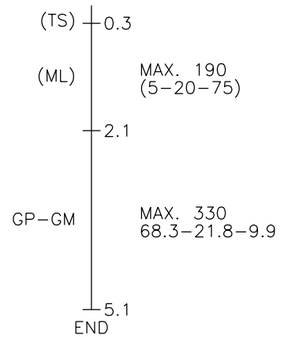
BAG C25-01a
DEPTH 0.0-1.1
BAG C25-01b
DEPTH 1.1-2.5
*see S.G. & ABS, Sand Equivalent, & Micro Duval Lab Test Results

TP25-02



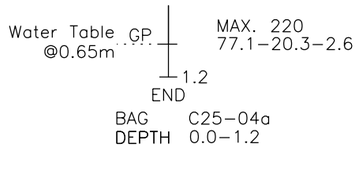
BAG C25-02a
DEPTH 0.6-2.9
*see S.G. & ABS, Sand Equivalent, & Micro Duval Lab Test Results

TP25-03



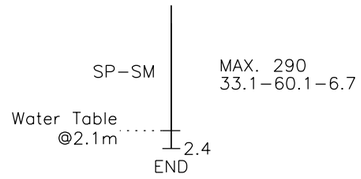
BAG NS
DEPTH 0.3-2.1
BAG C25-03a
DEPTH 2.1-5.1

TP25-04



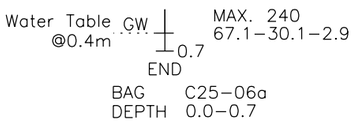
BAG C25-04a
DEPTH 0.0-1.2

TP25-05



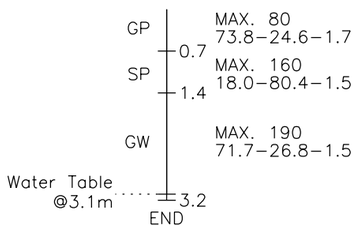
BAG C25-05a
DEPTH 0.0-2.4

TP25-06



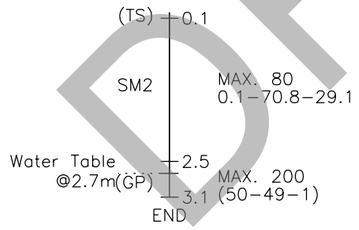
BAG C25-06a
DEPTH 0.0-0.7

TP25-07



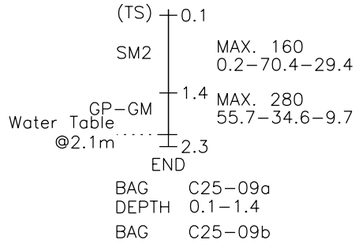
BAG C25-07a
DEPTH 0.0-0.7
BAG C25-07b
DEPTH 0.7-1.4
BAG C25-07c
DEPTH 1.4-3.2
*see S.G. & ABS, Sand Equivalent, & Micro Duval Lab Test Results (combined sample)

TP25-08



BAG C25-08a
DEPTH 0.1-2.5
BAG NS
DEPTH 2.5-3.1

TP25-09



BAG C25-09a
DEPTH 0.1-1.4
BAG C25-09b
DEPTH 1.4-2.3

DRAFT

SOIL CLASSIFICATION LEGEND

MAJOR DIVISIONS		SYMBOL	SOIL TYPE
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	WELL GRADED GRAVELS OR GRAVEL-SAND MIXTURES, < 5% FINES
		GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, < 5% FINES
		GM*	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
		GC*	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	SW	WELL-GRADED SANDS OR GRAVELLY SANDS, < 5% FINES
		SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, < 5% FINES
		SM*	SILTY SANDS SAND-SILT MIXTURES
		SC*	CLAYEY SANDS SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS WI <50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS WI >50	MH	INORGANIC SILTS, MICACEOUS OR DIATOM-ACEOUS FINE SANDY OR SILTY SOILS, PLASTIC SILTS
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
ORGANIC SOILS		Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS
TOPSOIL		TS	TOPSOIL WITH ROOTS, ETC.
COBBLES		SB	ROCK FRAGMENTS AND COBBLES, PARTICLE SIZE 75mm TO 300mm
BOULDERS		LB	BOULDERS, PARTICLE SIZE OVER 300mm

FOR SOILS HAVING 5 - 12% PASSING .075 SIEVE, USE DUAL SYMBOL

*GM1; GC1; SM1; SC1;	12 - 20%
GM2; GC2; SM2; SC2;	20 - 30%
GM3; GC3; SM3; SC3;	30 - 40%
GM4; GC4; SM4; SC4;	40 - 50%

} PASSING .075mm SIEVE

REV. 89-07-17

KEY

LABORATORY SIEVE ANALYSIS :
58.2-36.4-6.7
G-S-F

FIELD GRADATION ESTIMATE :
58-36-6
(G-S-F)

MAX. 600= MAX. ROCK SIZE IN mm.
DEPTH IS IN METERS

0 1:100 5

BRITISH COLUMBIA
Ministry of Transportation and Transit

TEST PIT LOGS
CHADWICK PIT

SA10 West Kootenay District		MAP 1 of 1
DRAWN: KA	DATE April 8, 2025	SCALE 1:100
FILE NO. Chadwick_StickLogs		

APPENDIX C

2025 LAB RESULTS

DRAFT

PROJECT REPORT OF
SIEVE ANALYSIS SUMMARIES

PERCENT PASSING

Project: Chadwick Pit Investigation
Sample Source:
Material: Pit Run

Project No.:
Client: MoT
Date: Feb. 18 - 22/25

Sample Information			Percent Passing Pit Run Sieve Sizes (mm)													
Test Pit	Bag #	Depth (m)	75	63	50	37.5	25	19	12.5	9.5	4.75	2.36	1.18	0.6	0.3	0.15	0.075
25 - 1a	0	0	100.0	100.0	100.0	100.0	98.2	98.0	93.7	91.1	87.2	84.2	78.3	55.4	25.2	15.9	10.7
25 - 1b	0	0	100.0	96.6	93.1	88.2	78.6	73.6	68.2	65.3	60.5	57.1	52.6	36.2	10.2	4.5	2.7
25 - 2a	0	0	100.0	90.3	87.8	73.6	61.2	53.2	44.9	41.0	33.3	28.1	23.5	17.9	11.4	8.6	7.1
25 - 3a	0	0	100.0	100.0	72.2	60.3	47.2	42.5	37.8	35.4	31.7	28.8	26.3	23.3	17.6	12.6	9.9
25 - 4a	0	0	87.3	87.3	69.9	61.5	50.2	41.7	34.3	30.1	22.9	18.8	14.2	8.3	4.1	3.1	2.6
25 - 5a	0	0	100.0	100.0	95.9	95.1	92.6	89.9	82.9	78.2	66.9	59.0	52.0	40.0	17.6	10.5	6.7
25 - 6a	0	0	100.0	100.0	97.4	87.4	69.4	59.2	48.2	43.2	32.9	26.2	20.2	13.0	6.4	3.9	2.9
25 - 7a	0	0	100.0	100.0	100.0	95.7	77.9	65.3	46.3	37.9	26.2	21.1	18.9	16.5	8.6	3.1	1.7
25 - 7b	0	0	100.0	100.0	100.0	96.5	91.6	88.9	86.2	84.6	82.0	79.3	74.4	29.9	8.7	2.6	1.5
25 - 7c	0	0	100.0	96.5	80.9	67.3	55.1	47.4	39.2	35.5	28.3	23.2	19.6	14.4	5.6	2.3	1.5
25 - 8a	0	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.7	99.4	98.1	90.6	43.1	29.1
25 - 9a	0	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	99.3	98.6	95.5	73.3	44.3	29.4
25 - 9b	0	0	100.0	91.0	86.5	77.2	70.0	63.5	55.7	51.9	44.3	39.4	35.1	29.9	21.9	14.4	9.7
MAX			100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.7	99.4	98.1	90.6	44.3	29.4
MIN			87.3228725	87.3	69.9	60.3	47.2	41.7	34.3	30.1	22.9	18.8	14.2	8.3	4.1	2.3	1.5
SD			3.51600255	4.55	10.82	15.02	19.16	22.11	25.03	26.48	29.09	30.54	31.15	29.56	27.09	14.41	9.65
MEAN			99	97.0	91.0	84.8	76.3	71.0	64.4	61.1	55.1	51.1	47.2	36.8	23.2	13.0	8.9
MEAN-2SD			92	88.0	69.4	54.8	38.0	26.8	14.4	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEAN+2SD			100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.9	77.4	41.8	28.2

DRAFT

Walgren Soils Testing Ltd.

Sand Equivalent / Micro Deval Testing

District: W. Koot. Project: Chadwick Pit Investigation

Pit: Chadwick Tested by: WST Date Tested: Feb. 26-28/25

Sampled by: SCL Date Sampled: Feb. 18/25

Test Hole 25 - 01 Sample #: 1b Depth: 1.1 - 2.5

Sand Equivalent

Trial #	1	2	3
Reading	20 min	20 min	
Ht. Clay	40.00	40.00	
Ht. Sand	35.00	36.00	
S.E.	87.50	90.00	
	Ave.	88.75	

Micro - Deval Test

Retained	Before	After
16.0 mm	376.8	312.9
12.5 mm	376.3	304.1
9.5 mm	749.7	757.3
	1502.8	1374.3
		8.55 %

Test Hole 25 - 02 Sample #: 2a Depth: 0.6 - 2.9

Sand Equivalent

Trial #	1	2	3
Reading	20 min	20 min	
Ht. Clay	41.00	40.00	
Ht. Sand	32.00	34.00	
S.E.	78.05	85.00	
	Ave.	81.52	

Micro - Deval Test

Retained	Before	After
16.0 mm	374.2	336.7
12.5 mm	376.4	362.6
9.5 mm	749.7	695.7
Totals	1500.3	1395
		7.02 %

Test Hole 25 - 07 Sample #: Combo a,b,c Depth: 0.0 - 3.2

Sand Equivalent

Trial #	1	2	3
Reading	20 min	20 min	
Ht. Clay	41.00	42.00	
Ht. Sand	35.00	35.00	
S.E.	85.37	83.33	
	Ave.	84.35	

Micro - Deval Test

Retained	Before	After
16.0 mm	375.6	360.7
12.5 mm	376.8	357.3
9.5 mm	750.3	681
	1502.7	1399
		6.90 %

DRAFT

WALGREN SOILS TESTING

BULK RELATIVE DENSITY OF AGGREGATE

Contract No. _____ Tested by WST

Pit Name Chadwick Pit Performed by WST

Location West Koot. Date Feb. 26 Mar. 2/25

Test Hole 25 - 01 Sa# 1b

COARSE AGGREGATE (RETAINED ON 4.75mm SIEVE)

		No. of Test 1	2	3	Avg	
Dry mass in air	(A_c)	723.2	719.2	755.6		g
Saturated surface dry in air	(B)	728.7	724.2	760.6		g
Saturated surface dry mass in water	(C)	461.3	456.6	478.6		g
Bulk relative density = $\frac{A_c}{B-C}$		2.705	2.688	2.679	2.691	
% absorption = $\frac{B-A_c}{A_c} \times 100$		0.76	0.70	0.66	0.71	

FINE AGGREGATE (PASSING 4.75mm SIEVE)

		No. of Test 1	2	3		
Mass of water required to calibrate flask	(W_c)	499.4	499.3	498.7		g
Mass of flask	(X)	172.0	163.4	151.2		g
Mass of flask & saturated surface dry aggregate & water	(Z)	911.5	899.2	895.9		g
Mass of flask plus saturated surface dry aggregate	(Y)	558.4	543.7	545.9		g
Mass of added water (Z- Y)	(W_a)	353.1	355.5	350.0		g
Mass of oven dry aggregate in air	(A_f)	380.8	374.7	388.2		g
Bulk relative density = $\frac{A_f}{W_c - W_a}$		2.603	2.606	2.611	2.606	
% water absorption = $\frac{Y - X - A_f}{A_f} \times 100$		1.47	1.49	1.67	1.55	

DRAFT

WALGREN SOILS TESTING

BULK RELATIVE DENSITY OF AGGREGATE

Contract No. _____ Tested by WST

Pit Name Chadwick Pit Performed by WST

Location West Koot. Date Feb. 26 Mar. 2/25

Test Hole 25 - 02 Sa# 2a

COARSE AGGREGATE (RETAINED ON 4.75mm SIEVE)

		No. of Test 1	2	3	Avg	
Dry mass in air	(A_c)	730.2	713.6	725.7		g
Saturated surface dry in air	(B)	735.5	719.9	730.5		g
Saturated surface dry mass in water	(C)	461.7	458.1	460.5		g
Bulk relative density = $\frac{A_c}{B-C}$		2.667	2.726	2.688	2.693	
% absorption = $\frac{B-A_c}{A_c} \times 100$		0.73	0.88	0.66	0.76	

FINE AGGREGATE (PASSING 4.75mm SIEVE)

		No. of Test 1	2	3		
Mass of water required to calibrate flask	(W_c)	498.6	499.1	499.3		g
Mass of flask	(X)	150.1	168.1	176.2		g
Mass of flask & saturated surface dry aggregate & water	(Z)	912.7	929.3	922.0		g
Mass of flask plus saturated surface dry aggregate	(Y)	571.8	587.5	571.1		g
Mass of added water (Z- Y)	(W_a)	340.9	341.8	350.9		g
Mass of oven dry aggregate in air	(A_f)	417.0	414.2	390.4		g
Bulk relative density = $\frac{A_f}{W_c - W_a}$		2.644	2.633	2.631	2.636	
% water absorption = $\frac{Y - X - A_f}{A_f} \times 100$		1.13	1.26	1.15	1.18	

DRAFT

WALGREN SOILS TESTING

BULK RELATIVE DENSITY OF AGGREGATE

Contract No. _____ Tested by WST

Pit Name Chadwick Pit Performed by WST

Location West Koot. Date Feb. 26 Mar. 2/25

Test Hole 25 - 07 Sa# 7 abc

COARSE AGGREGATE (RETAINED ON 4.75mm SIEVE)

		No. of Test 1	2	3	Avg	
Dry mass in air	(A_c)	868.4	900.5	817.3		g
Saturated surface dry in air	(B)	874.1	907.5	824.7		g
Saturated surface dry mass in water	(C)	548.9	570.9	519.2		g
Bulk relative density = $\frac{A_c}{B-C}$		2.670	2.675	2.675	2.674	
% absorption = $\frac{B-A_c}{A_c} \times 100$		0.66	0.78	0.91	0.78	

FINE AGGREGATE (PASSING 4.75mm SIEVE)

		No. of Test 1	2	3		
Mass of water required to calibrate flask	(W_c)	499.4	499.3	498.7		g
Mass of flask	(X)	172.0	163.4	151.2		g
Mass of flask & saturated surface dry aggregate & water	(Z)	923.3	904.7	907.0		g
Mass of flask plus saturated surface dry aggregate	(Y)	576.7	551.6	563.5		g
Mass of added water (Z- Y)	(W_a)	346.6	353.1	343.5		g
Mass of oven dry aggregate in air	(A_f)	398.6	382.4	406.4		g
Bulk relative density = $\frac{A_f}{W_c - W_a}$		2.609	2.616	2.619	2.614	
% water absorption = $\frac{Y - X - A_f}{A_f} \times 100$		1.53	1.52	1.45	1.50	

DRAFT

From: Mitchell, Allan J MOTI:EX(Al.Mitchell@gov.bc.ca)
To: sitkum@telus.net, karenanderson@sitkum.ca, XT:Anderson, Karen L FOR:INSteven.Lee@gov.bc.ca, Lee, Steven TT:EX
To: Stephanie.Fogg@gov.bc.ca, Fogg, Stephanie TT:EX
Subject: RE: Chadwick Pit: TIR PACKAGE FOR YOUR REVIEW
Sent: 04/16/2025 10:11:52

Thanks for the reminder, I'll go in and grab the files.

Thanks,
Al

Al Mitchell
Aggregate Resource Manager
Ministry of Transportation and Transit
Kamloops BC V2C 2T3
778-362-4505 off 250-851-1124 cel
Al.Mitchell@gov.bc.ca

From: sitkum@telus.net <sitkum@telus.net>
Sent: Wednesday, April 16, 2025 9:14 AM
To: XT:Anderson, Karen L FOR:IN <karenanderson@sitkum.ca>; Lee, Steven TT:EX <Steven.Lee@gov.bc.ca>; Mitchell, Allan J TT:EX <Al.Mitchell@gov.bc.ca>
Cc: Fogg, Stephanie TT:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: TIR PACKAGE FOR YOUR REVIEW

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Steve is away until the 28th

Wayne Miller, P.Geo. P.L.Eng.
Engineering Geologist - Principal

Sitkum Consulting Ltd.
1516 Robertson Ave
Nelson BC
V1L 1C6

Ph: 250 352 3792
Cel: 250 354 9599
e-mail: sitkum@telus.net
Website: www.sitkum.ca

From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Wednesday, April 16, 2025 8:43 AM
To: Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: TIR PACKAGE FOR YOUR REVIEW

Hi crew,

Just checking in to see if you would like the TIR for Chadwick finalized or if you have any comments/questions? I received a message that the TIR hadn't been downloaded yet. The link expires on April 20, but I can send again if needed.

Cheers, Karen.

From: Karen Anderson
Sent: April 8, 2025 5:01 PM
To: Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: TIR PACKAGE FOR YOUR REVIEW

Hi all,

Here is a link to the draft Technical Investigation Report for your review (expires April 20):
https://www.dropbox.com/t/nJIjyCOMxD9Ruhdr

Please let us know if you have any comments or if you would like the TIR package finalized.

Cheers, Karen and Wayne

Karen Anderson, Eng.Tech.
Sitkum Consulting Ltd.
Nelson, B.C.
Cell: 250-777-2645
Email: karenanderson@sitkum.ca

From: Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Sent: April 7, 2025 11:40 AM
To: Karen Anderson <karenanderson@sitkum.ca>; Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hmm good catch, didn't notice that. I just did a LTSA title search for the property and I am only seeing 'LOT 1 DISTRICT LOT 812 KOOTENAY DISTRICT PLAN 4890' for the Legal Description so I'm fine just using this as the descriptor for the TIR. I will file this Parcel 7 info away for future reference if we need it, but I'm not seeing any reference to it on iMap or through LTSA.

Thanks Karen!

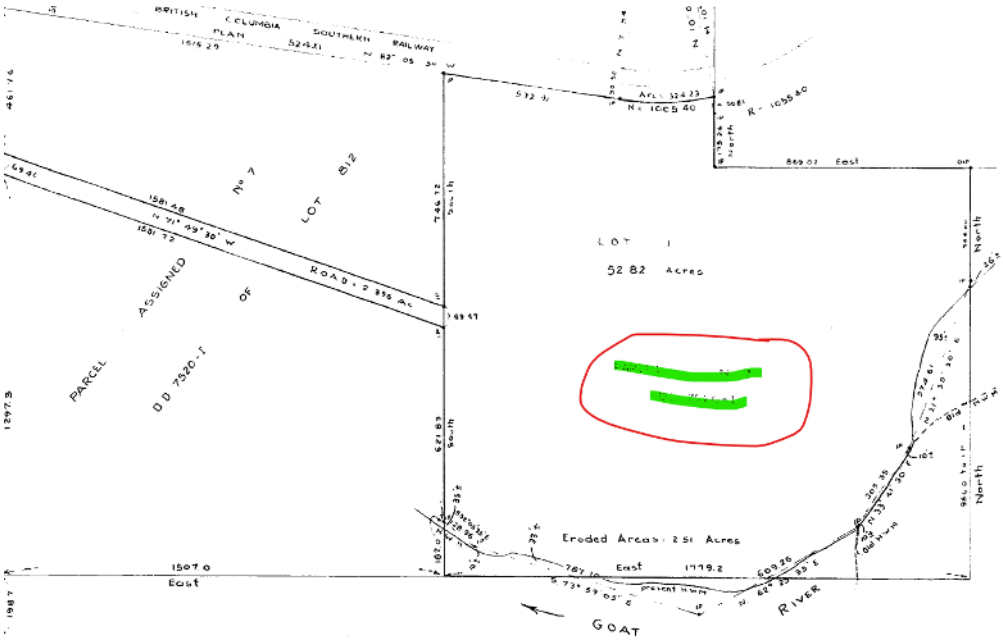
From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Monday, April 7, 2025 10:42 AM
To: Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Thanks for the info Steven.

There does appear to be a Parcel No 7 DD 7520-I label in Chadwick pit but it's a lot lighter like maybe someone tried to erase it? I can't tell for sure. Maybe let me know if you want that included in the legal description in the TIR or not?

Cheers, Karen.



From: Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Sent: April 7, 2025 10:29 AM
To: Karen Anderson <karenanderson@sitkum.ca>; Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hi Karen,

Looks like the property was purchased in 1962. It looks to me like Parcel No. 7 is actually the property to the west (see attached plan). Does this seem correct?

It doesn't appear there have been other investigations outside of those years.

I see record of 6500m3 of SGSB mined in 2000.

Thanks Karen,
Steven
250 819 1103

From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Friday, April 4, 2025 10:53 AM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>

Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hey y'all. Sorry for the delay. We will have the TIR completed for Monday. A couple of quick questions if any of you are around to answer today:

- When did the MoTT buy the Chadwick property?
- Is Parcel No.7, D.D 7520-1 still part of the property description (mentioned in 1994 TIR, but not on the MoTT's Agg Pits website)?
- Were there any other investigations/testing other then 1962, 1994 and 2025?
- When did the arrestor bed mining occur and please confirm that only 6,500 m3 was mined?

Thanks! Karen.

From: Karen Anderson
Sent: March 31, 2025 11:23 AM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Sounds good, thanks!

From: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Sent: March 31, 2025 11:20 AM
To: Karen Anderson <karenanderson@sitkum.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hi Karen,

It seems Word saves our documents as .docx, so, I'll go out on a limb and say 'yes'.

Thanks,
Al

Al Mitchell
Aggregate Resource Manager
Ministry of Transportation and Transit
Kamloops BC V2C 2T3
778-362-4505 off 250-851-1124 cel
Al.Mitchell@gov.bc.ca

From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Monday, March 31, 2025 10:49 AM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi Al,

I am working on the TIR for Chadwick. Can the MoTT team use docx reports? If so, I'm going to update to that format as it allows for more photo format options.

Cheers, Karen.

From: Karen Anderson
Sent: March 25, 2025 3:35 PM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hi Al,

I can get to that early next week.

Cheers, Karen.

From: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Sent: March 25, 2025 2:49 PM
To: Karen Anderson <karenanderson@sitkum.ca>
Cc: sitkum@telus.net; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Thanks for the reminder, Karen.
If we could get the pdp 'cleaned' up, removing some of the busyness, that would be appreciated.
As well, if we could get a bit of a report put together indicating the findings along with some comments indicating the challenges that can be expected moving forward, that would be appreciated.

Thanks,
Al

Al Mitchell
Aggregate Resource Manager
Ministry of Transportation and Transit
Kamloops BC V2C 2T3
778-362-4505 off 250-851-1124 cel
Al.Mitchell@gov.bc.ca

From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Tuesday, March 25, 2025 1:16 PM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Cc: sitkum@telus.net
Subject: RE: Chadwick Pit: Request for HE List

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi Al,

I think that I sent these PDP maps to you previously. They have the updated test pit locations. However, I haven't removed my placemarks or received any edits from MoTT or Wayne in terms of other edits to the maps or comments. Let me know if you have any edits or if you want these sent to Greg as is.

Link expires April 6: https://www.dropbox.com/t/VveSGJLzY9XPw6pj

Cheers, Karen

From: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Sent: March 25, 2025 12:29 PM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; Karen Anderson <karenanderson@sitkum.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hi Greg,

We'll update the PDP to reflect the new test pit locations.

Thanks,
Al

Al Mitchell
Aggregate Resource Manager
Ministry of Transportation and Transit
Kamloops BC V2C 2T3
778-362-4505 off 250-851-1124 cel
Al.Mitchell@gov.bc.ca

From: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>
Sent: Tuesday, March 25, 2025 8:11 AM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; XT:Anderson, Karen L FOR:IN <karenanderson@sitkum.ca>
Subject: RE: Chadwick Pit: Request for HE List

Will the pit development plan need to be updated or did the testing confirm it is accurate?

From: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>
Sent: Monday, March 24, 2025 11:43 AM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; XT:Anderson, Karen L FOR:IN <karenanderson@sitkum.ca>
Subject: Re: Chadwick Pit: Request for HE List

Thanks Al!

Get Outlook for iOS

From: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>
Sent: Monday, March 24, 2025 11:29:05 AM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; XT:Anderson, Karen L FOR:IN <karenanderson@sitkum.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hi Greg,

There seems to still be some gravel left in the pit, ~20,000m^3, however, it appears it will be challenging to mine it effectively.

Thanks,
Al

Al Mitchell
Aggregate Resource Manager
Ministry of Transportation and Transit
Kamloops BC V2C 2T3
778-362-4505 off 250-851-1124 cel
Al.Mitchell@gov.bc.ca

From: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>
Sent: Thursday, March 20, 2025 1:06 PM
To: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; XT:Anderson, Karen L FOR:IN <karenanderson@sitkum.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hey there,

Any intel on the results of the testing?

Even high level, did it look like gravel resources where still present?

Thanks!

From: Kinnear, Greg MOTI:EX
Sent: Thursday, February 27, 2025 3:02 PM
To: Karen Anderson <karenanderson@sitkum.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Gibson, Danielle 1 MOTI:EX <Danielle.1.Gibson@gov.bc.ca>; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

That's great news, thanks Karen :)

GK

From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Thursday, February 27, 2025 2:59 PM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Gibson, Danielle 1 MOTI:EX <Danielle.1.Gibson@gov.bc.ca>; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi Greg,

Thanks for checking in. Access was great! YRB left a gate key out for the operator to grab. The Wilson's let the lowbed through their private gate and he was able to turn around in an opening on their property. Thankfully, the snow was only 4-6" so we could drive our trucks into the pit and collect samples instead of hauling them with the hoe. We are now just waiting on the final quality testing from the lab and will put together a memo/email for the MoTT. Long, busy day, but it all went smoothly.

Cheers, Karen.

From: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>
Sent: February 27, 2025 2:42 PM
To: Karen Anderson <karenanderson@sitkum.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Gibson, Danielle 1 MOTI:EX <Danielle.1.Gibson@gov.bc.ca>; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hey Karen, how did the pit testing project go?

Any issues with access?

Thanks!

From: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>
Sent: Friday, February 14, 2025 8:31 AM
To: XT:Anderson, Karen L FOR:IN <karenanderson@sitkum.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Gibson, Danielle 1 MOTI:EX

<Danielle.1.Gibson@gov.bc.ca>; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: Re: Chadwick Pit: Request for HE List

Thanks Karen , you too!

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From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Thursday, February 13, 2025 5:56:38 PM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net <sitkum@telus.net>; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>; Gibson, Danielle 1 MOTI:EX <Danielle.1.Gibson@gov.bc.ca>; Fogg, Stephanie MOTI:EX <Stephanie.Fogg@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

My bad. Monday is a holiday, and the contractor would now like to go out on Tuesday instead. Hopefully, that's set in stone now that the RA, lowbed and key arrangements have all been made 😉😉.

Have a wonderful long weekend, Karen.

Karen Anderson, Eng.Tech.
Sitkum Consulting Ltd.
4509 Carlson Rd
Nelson, B.C. V1L 6X3
Email: karenanderson@sitkum.ca
Cell: 250-777-2645

From: Karen Anderson
Sent: February 13, 2025 10:43 AM
To: 'Kinnear, Greg MOTI:EX' <Greg.Kinnear@gov.bc.ca>; 'Brigl, Gundula MOTI:EX' <Gundula.Brigl@gov.bc.ca>
Cc: 'Mitchell, Allan J MOTI:EX' <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; 'Jacobsen, Jill MOTI:EX' <Jill.Jacobsen@gov.bc.ca>; 'Lee, Steven MOTI:EX' <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Hi all,

The tentative plan is to proceed with testing in Chadwick Pit on Monday. I have left a message with YRB to make arrangements to hopefully pick up the gate key at 7am if someone is there. The Wilson's will remove the blowdown prior to the pit gate. They are also fine with the lowbed unloading and turning around in their yard if it can't at the end of Goat River Road South. It's likely there will be about 9" of snow beyond the Wilson's yard (currently 6" of crusty snow on-site), so driving into the pit sounds like it could be a problem.

I will let you know if there are any changes to this plan.

Regards, Karen.

From: Karen Anderson
Sent: February 10, 2025 11:37 AM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Thanks Greg. Yes, the machine could be unloaded at the roundabout, or in the Wilson's yard if they prefer and allow the excavator to go outside of the MoTT RoW to pass the lowbed to remove the tree so the lowbed can pass and turn around. Depending on the lowbed length and driver, it may be able to turn around at the roundabout, but it's pretty tight.

As for the gate key, it would be great if I can pick it up and drop it at the YRB Creston Yard. Once I know the date, I can contact them to make arrangements. I found their contact info online.



Cheers, and hope that you are doing well, Karen.

From: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>
Sent: February 10, 2025 10:22 AM
To: Karen Anderson <karenanderson@sitkum.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List

Thanks Karen

I am comfortable with either option,

Would unloading the machine, removing the tree and opening the gate so the low bed can turn around in the pit would also work?

YRB Creston Yard will have a key, I can let them know you will need access when the equipment is scheduled

Thanks!

GK

From: Karen Anderson <karenanderson@sitkum.ca>
Sent: Monday, February 10, 2025 8:19 AM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Mitchell, Allan J MOTI:EX <Al.Mitchell@gov.bc.ca>; sitkum@telus.net; Jacobsen, Jill MOTI:EX <Jill.Jacobsen@gov.bc.ca>; Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca>
Subject: RE: Chadwick Pit: Request for HE List
Importance: High

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi Gundula and Greg,

I spoke with the excavator owner/operator on Friday evening. He's planning to forward his insurance and sign the rental agreement today. He thinks the lowbed will be available this week to get the excavator moved to Chadwick Pit. As per my email below, will you be making access arrangements with the Wilson's? Also, where can I get a key to open the pit gate?

Regards, Karen

Karen Anderson, Eng.Tech.
Sitkum Consulting Ltd.
4509 Carlson Rd
Nelson, B.C. V1L 6X3
Email: karenanderson@sitkum.ca
Cell: 250-777-2645

From: Karen Anderson
Sent: February 5, 2025 12:30 PM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Al Mitchell <Al.Mitchell@gov.bc.ca>; Wayne Miller Office <sitkum@telus.net>; 'Jacobsen, Jill TRAN:EX' <Jill.Jacobsen@gov.bc.ca>; Steven Lee <Steven.Lee@gov.bc.ca>
Subject: FW: Chadwick Pit: Request for HE List

Apologies, I cc'd the wrong Jill. I have asked her to delete the email. If replying to this thread, please use this email and not my previous one.

From: Karen Anderson
Sent: February 5, 2025 12:08 PM
To: Kinnear, Greg MOTI:EX <Greg.Kinnear@gov.bc.ca>; Brigl, Gundula MOTI:EX <Gundula.Brigl@gov.bc.ca>
Cc: Al Mitchell <Al.Mitchell@gov.bc.ca>; Wayne Miller Office <sitkum@telus.net>; Jill Faulkner <jill.faulkner@interfor.com>; Steven Lee <Steven.Lee@gov.bc.ca>
Subject: FW: Chadwick Pit: Request for HE List

Your access email is definitely timed well, Greg. Below is the email that I sent to Gundula. The CRB may not require removing as noted below.

Cheers, Karen.

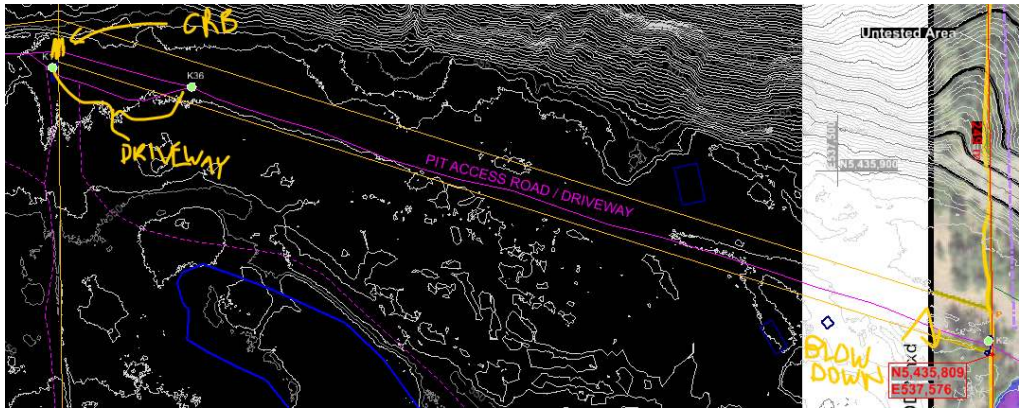
From: Karen Anderson
Sent: February 5, 2025 11:32 AM
To: Gundula.Brigl@gov.bc.ca
Cc: Wayne Miller Office <sitkum@telus.net>; Al Mitchell <Al.Mitchell@gov.bc.ca>; 'Jacobsen, Jill TRAN:EX' <Jill.Jacobsen@gov.bc.ca>; Steven Lee <Steven.Lee@gov.bc.ca>
Subject: FW: Chadwick Pit: Request for HE List

Hi Gundula,

I wanted to let you know that SCL is planning to do some test pitting in Chadwick Pit in the next few weeks. We just received the hired equipment list from Danielle and will be working out rental agreements soon.

In terms of pit access, there are currently 2 rows of CRB at the end of the public road allowing pedestrian access only, as well as a large (70+cm DBH) cottonwood ~40 m west of the pit entry gate blocking the pit access/driveway. See the screenshot below and attachments. I spoke with Brad Wilson, the landowner west of the pit reserve while onsite last week. He offered to let the lowbed use his driveway instead of removing/replacing the CRB, and also to either remove the cottonwood blowdown himself or allow the lowbed to unload the excavator in his yard so that we could remove the blowdown. Note I think the roundabout at the end of the public road is pretty tight for the lowbed to turn around. Depending on the driver and the lowbed length, it may be possible to do so. However, the best turnaround is within the pit itself (if Brad removes the blowdown) or within the Wilson's yard. Otherwise, the lowbed may have to back down the public road to a suitable junction to turn around.

Would you prefer to contact the Wilson's to confirm Brad's offers as stated above? He provided me with his wife Billie's contact number which is 250-254-1719. We can let you know when the start date is once the rental agreement is in place. It's likely that only 1 day of testing will be needed, but it could potentially take up to 2 days depending on access requirements.



Feel free to contact me if you have any questions, Karen.

Karen Anderson, Eng.Tech.
Sitkum Consulting Ltd.
Nelson, B.C.
Cell: 250-777-2645
Email: karenanderson@sitkum.ca

From: Karen Anderson
Sent: February 5, 2025 10:01 AM
To: Danielle.1.Gibson@gov.bc.ca; 'Jacobsen, Jill TRAN:EX' <Jill.Jacobsen@gov.bc.ca>
Cc: Wayne Miller Office <sitkum@telus.net>; Al Mitchell <Al.Mitchell@gov.bc.ca>; Steven Lee <Steven.Lee@gov.bc.ca>
Subject: Chadwick Pit: Request for HE List

Hi Danielle and Jill,

Sitkum is looking to do some testing at Chadwick Pit in Creston in the next few weeks; see attached pit reserve. We will need a medium sized excavator (50,000lb) class equipped with thumb and bush guarding. Also, the excavator should be equipped for winter conditions, even though the site is mostly flat and ice lugs on the tracks may not be needed. Can you please send a hired equipment list for the testing?

Thanks!

Karen Anderson, Eng.Tech.
Sitkum Consulting Ltd.
Nelson, B.C.
Cell: 250-777-2645
Email: karenanderson@sitkum.ca

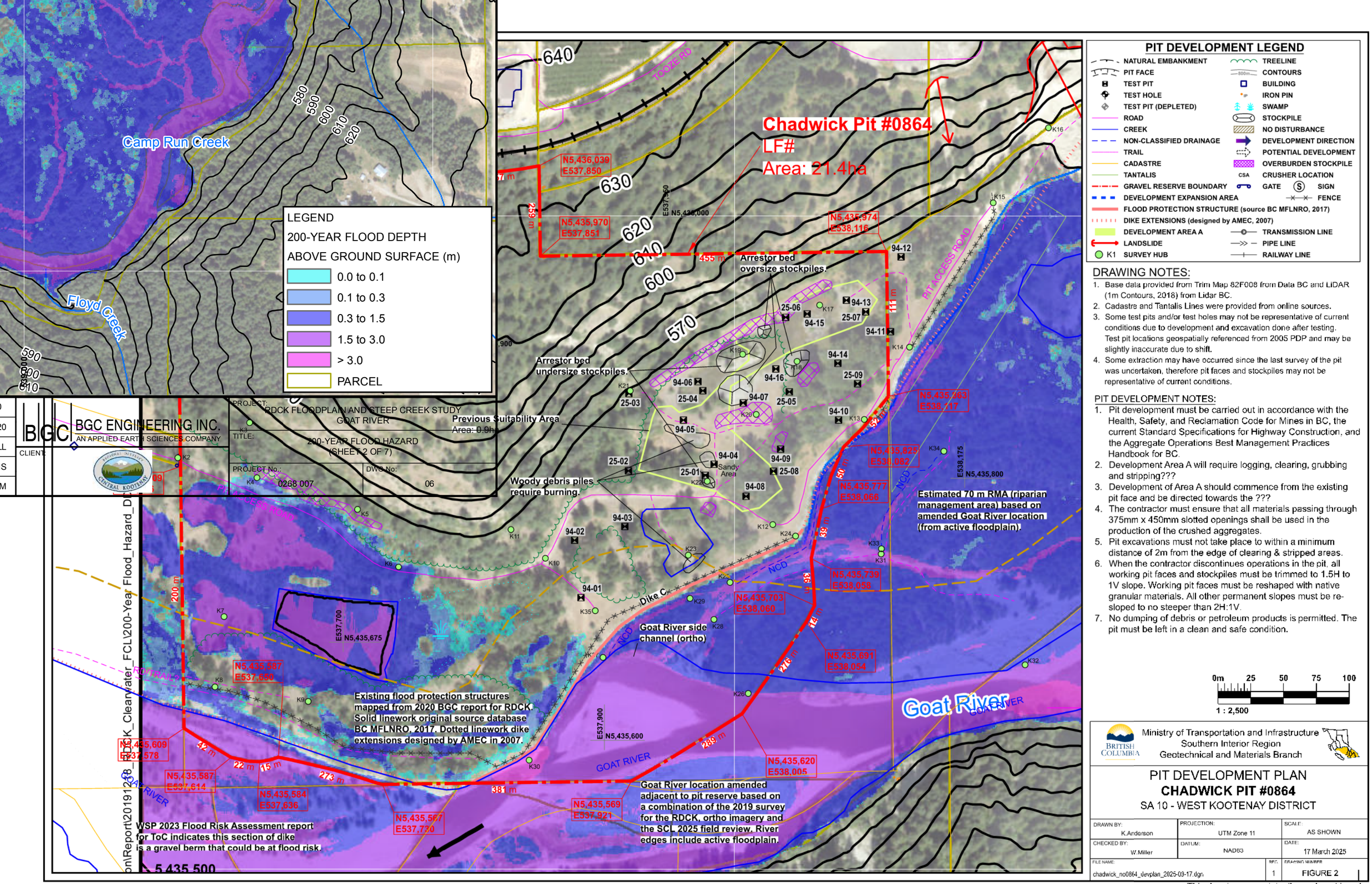
From: Lee, Steven MOTI:EX(Steven.Lee@gov.bc.ca)
To: walgren@telus.net,
To: Al.Mitchell@gov.bc.ca, Mitchell, Allan J MOTI:EXJohn.Braidford@gov.bc.ca, Braidford, John MOTI:EX
Subject: Chadwick Pit Testing invoice
Sent: 03/26/2025 10:10:26

Hi Bruce,

Thanks for taking on the Chadwick samples from Wayne & Karen. With our fiscal year end here we are wondering if you can submit an invoice to us ASAP?

Thanks,

Steven Lee | Senior Aggregate Resource Specialist
Ministry of Transportation & Transit
Southern Interior Region – Geotechnical & Materials Engineering
447 Columbia St., Kamloops, BC V2C 2T3
mobile: 250.819.1103



$(GETVAR, "DWGPREFIX")$(GETVAR, "DWGNAME") - $(GETVAR, "CTAB") -$(EDTIME, 0, MON. DD," YYYY H:MMam/pm) - $(GETVAR, "LOGINNAME")

This drawing was originally produced in colour.

Chadwick Pit #0864

LF#

Area: 21.4ha

Magnetic Declination

Untested Area

LOT 1, DL 812
KOOTENAY PL 4890

Arrestor bed oversize stockpiles.

Arrestor bed undersize stockpiles.

Previous Suitability Area
Area: 0.9ha

Woody debris piles require burning.

CSA

Sandy Area

Goat River side channel (ortho)

Estimated 70 m RMA (riparian management area) based on amended Goat River location (from active floodplain).

Existing flood protection structures mapped from 2020 BGC report for RDCK. Solid linework original source database BC MELNRO, 2017. Dotted linework dike extensions designed by AMEC in 2007.

WSP 2023 Flood Risk Assessment report for ToC indicates this section of dike is a gravel berm that could be at flood risk.

Goat River location amended adjacent to pit reserve based on a combination of the 2019 survey for the RDCK, ortho imagery and the SCL 2025 field review. River edges include active floodplain.

GOAT RIVER

Dike C

RDTRAIL

PIT ACCESS ROAD

TOYOTE ROY

NCD

PIT DEVELOPMENT LEGEND

- NATURAL EMBANKMENT
- PIT FACE
- TEST PIT
- TEST HOLE
- TEST PIT (DEPLETED)
- ROAD
- CREEK
- NON-CLASSIFIED DRAINAGE
- TRAIL
- CADASTRE
- TANTALIS
- GRAVEL RESERVE BOUNDARY
- DEVELOPMENT EXPANSION AREA
- FLOOD PROTECTION STRUCTURE (source BC MFLNRO, 2017)
- DIKE EXTENSIONS (designed by AMEC, 2007)
- DEVELOPMENT AREA A
- LANDSLIDE
- K1 SURVEY HUB
- TREELINE
- CONTOURS
- BUILDING
- IRON PIN
- SWAMP
- STOCKPILE
- NO DISTURBANCE
- DEVELOPMENT DIRECTION
- POTENTIAL DEVELOPMENT
- OVERBURDEN STOCKPILE
- CSA CRUSHER LOCATION
- GATE
- SIGN
- FENCE
- TRANSMISSION LINE
- PIPE LINE
- RAILWAY LINE

DRAWING NOTES:

1. Base data provided from Trim Map 82F008 from Data BC and LiDAR (1m Contours, 2018) from Lidar BC.
2. Cadastre and Tantalis Lines were provided from online sources.
3. Some test pits and/or test holes may not be representative of current conditions due to development and excavation done after testing. Test pit locations geospatially referenced from 2005 PDP and may be slightly inaccurate due to shift.
4. Some extraction may have occurred since the last survey of the pit was uncertaken, therefore pit faces and stockpiles may not be representative of current conditions.

PIT DEVELOPMENT NOTES:

1. Pit development must be carried out in accordance with the Health, Safety, and Reclamation Code for Mines in BC, the current Standard Specifications for Highway Construction, and the Aggregate Operations Best Management Practices Handbook for BC.
2. Development Area A will require logging, clearing, grubbing and stripping???
3. Development of Area A should commence from the existing pit face and be directed towards the ???
4. The contractor must ensure that all materials passing through 375mm x 450mm slotted openings shall be used in the production of the crushed aggregates.
5. Pit excavations must not take place to within a minimum distance of 2m from the edge of clearing & stripped areas.
6. When the contractor discontinues operations in the pit, all working pit faces and stockpiles must be trimmed to 1.5H to 1V slope. Working pit faces must be reshaped with native granular materials. All other permanent slopes must be re-sloped to no steeper than 2H:1V.
7. No dumping of debris or petroleum products is permitted. The pit must be left in a clean and safe condition.

0m 25 50 75 100

1 : 2,500

Ministry of Transportation and Infrastructure
Southern Interior Region
Geotechnical and Materials Branch

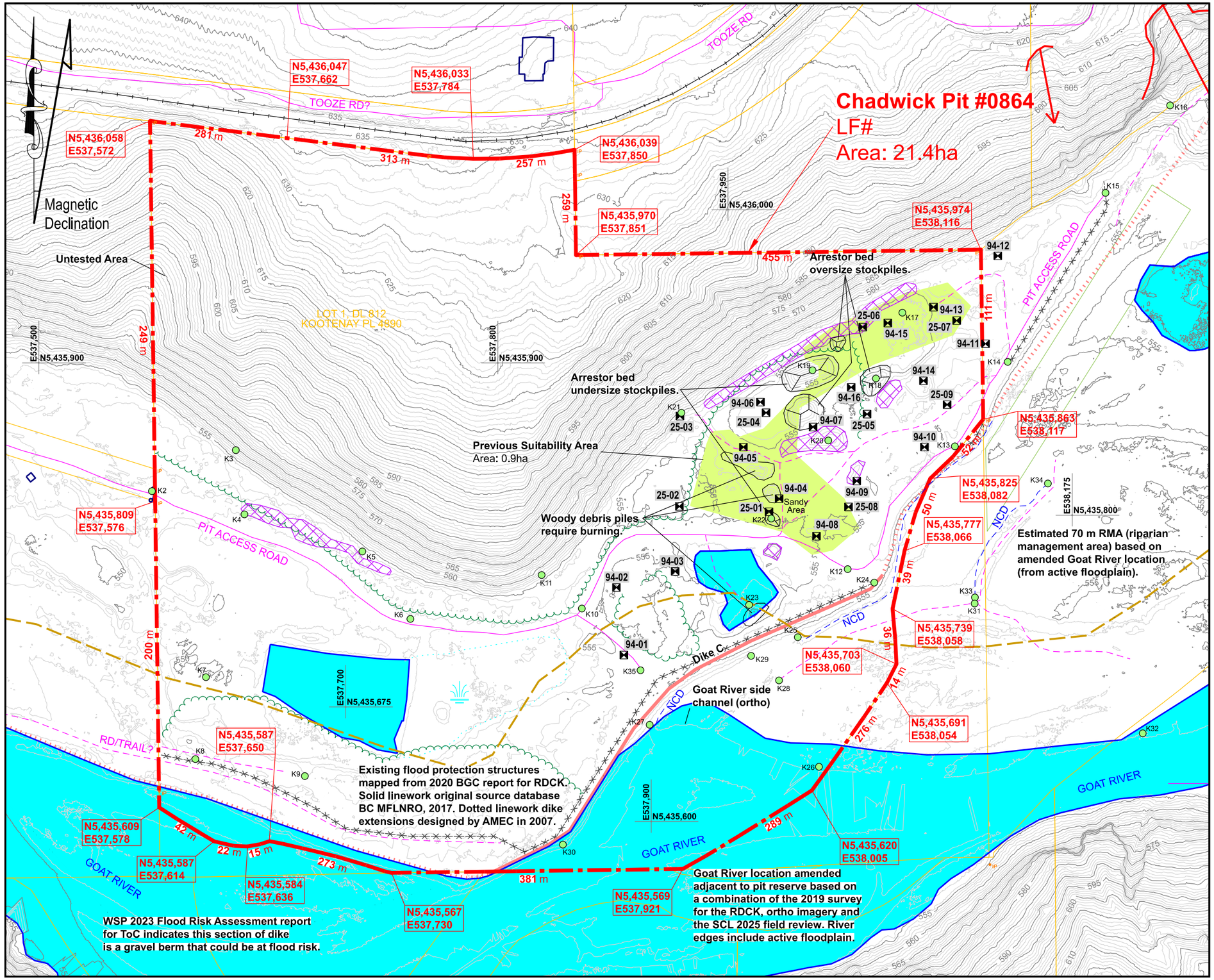
BRITISH COLUMBIA

PIT DEVELOPMENT PLAN
CHADWICK PIT #0864
SA 10 - WEST KOOTENAY DISTRICT

DRAWN BY: K.Anderson	PROJECTION: UTM Zone 11	SCALE: AS SHOWN
CHECKED BY: W.Miller	DATUM: NAD83	DATE: 17 March 2025
FILE NAME: chadwick_no0864_devplan_2025-03-17.dgn	REV: 1	DRAWING NUMBER: FIGURE 2

This drawing was originally produced in colour.

$(GETVAR, "DWGPREFIX")$(GETVAR, "DWGNAME") - $(GETVAR, "CTAB") -$(EDTIME, 0, MON. DD"," YYYY H:MMam/pm) - $(GETVAR, "LOGINNAME")



PIT DEVELOPMENT LEGEND

- NATURAL EMBANKMENT
- PIT FACE
- TEST PIT
- TEST HOLE
- TEST PIT (DEPLETED)
- ROAD
- CREEK
- NON-CLASSIFIED DRAINAGE
- TRAIL
- CADASTRE
- TANTALIS
- GRAVEL RESERVE BOUNDARY
- DEVELOPMENT EXPANSION AREA
- FLOOD PROTECTION STRUCTURE (source BC MFLNRO, 2017)
- DIKE EXTENSIONS (designed by AMEC, 2007)
- DEVELOPMENT AREA A
- LANDSLIDE
- K1 SURVEY HUB
- TREELINE
- CONTOURS
- BUILDING
- IRON PIN
- SWAMP
- STOCKPILE
- NO DISTURBANCE
- DEVELOPMENT DIRECTION
- POTENTIAL DEVELOPMENT
- OVERBURDEN STOCKPILE
- CSA CRUSHER LOCATION
- GATE
- SIGN
- FENCE
- TRANSMISSION LINE
- PIPE LINE
- RAILWAY LINE

DRAWING NOTES:

1. Base data provided from Trim Map 82F008 from Data BC and LiDAR (1m Contours, 2018) from Lidar BC.
2. Cadastre and Tantalis Lines were provided from online sources.
3. Some test pits and/or test holes may not be representative of current conditions due to development and excavation done after testing. Test pit locations geospatially referenced from 2005 PDP and may be slightly inaccurate due to shift.
4. Some extraction may have occurred since the last survey of the pit was undertaken, therefore pit faces and stockpiles may not be representative of current conditions.

PIT DEVELOPMENT NOTES:

1. Pit development must be carried out in accordance with the Health, Safety, and Reclamation Code for Mines in BC, the current Standard Specifications for Highway Construction, and the Aggregate Operations Best Management Practices Handbook for BC.
2. Development Area A will require logging, clearing, grubbing and stripping???
3. Development of Area A should commence from the existing pit face and be directed towards the ???
4. The contractor must ensure that all materials passing through 375mm x 450mm slotted openings shall be used in the production of the crushed aggregates.
5. Pit excavations must not take place to within a minimum distance of 2m from the edge of clearing & stripped areas.
6. When the contractor discontinues operations in the pit, all working pit faces and stockpiles must be trimmed to 1.5H to 1V slope. Working pit faces must be reshaped with native granular materials. All other permanent slopes must be re-sloped to no steeper than 2H:1V.
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Ministry of Transportation and Infrastructure
Southern Interior Region
Geotechnical and Materials Branch

PIT DEVELOPMENT PLAN
CHADWICK PIT #0864
SA 10 - WEST KOOTENAY DISTRICT

DRAWN BY: K.Anderson	PROJECTION: UTM Zone 11	SCALE: AS SHOWN
CHECKED BY: W.Miller	DATUM: NAD83	DATE: 17 March 2025
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$(GETVAR, "DWGPREFIX")$(GETVAR, "DWGNAME") - $(GETVAR, "CTAB") -$(EDTIME, 0, MON. DD"," YYYY H:MMam/pm) - $(GETVAR, "LOGINNAME")

From: Bruce or Karen Walgren
To: Lee, Steven MOTI:EX
Subject: Re: Chadwick Pit Testing invoice
Date: March 26, 2025 10:15:43 AM

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi Steven

The Chadwick Pit invoice was sent to John Briadfor on Feb. 26 and has been paid.

Regards

Bruce

On Wed, Mar 26, 2025 at 10:11 AM Bruce or Karen Walgren <walgren@telus.net> wrote:

> I did send one to John Braidford. But here it is.
>
> Bruce
>
> On Wed, Mar 26, 2025 at 10:10 AM Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca> wrote:
>
> > Hi Bruce,
> >
> > Thanks for taking on the Chadwick samples from Wayne & Karen. With our fiscal year end here we are wondering if you can submit an invoice to us ASAP?
> >
> > Thanks,
> >
> > **Steven Lee | Senior Aggregate Resource Specialist**
> >
> > Ministry of Transportation & Transit
> >
> > Southern Interior Region – Geotechnical & Materials Engineering
> >
> > 447 Columbia St., Kamloops, BC V2C 2T3
> >
> > **mobile:** 250.819.1103

From: Bruce or Karen Walgren
To: Lee, Steven MOTI:EX
Subject: Re: Chadwick Pit Testing invoice
Date: March 26, 2025 10:12:25 AM
Attachments: 251097 Chadwick Pit Invest - MoT.xls

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

I did send one to John Braidford. But here it is.

Bruce

On Wed, Mar 26, 2025 at 10:10 AM Lee, Steven MOTI:EX <Steven.Lee@gov.bc.ca> wrote:

> Hi Bruce,
>
> Thanks for taking on the Chadwick samples from Wayne & Karen. With our fiscal year end here we are wondering if you can submit an invoice to us ASAP?
>
> Thanks,
>
> **Steven Lee | Senior Aggregate Resource Specialist**
>
> Ministry of Transportation & Transit
>
> Southern Interior Region – Geotechnical & Materials Engineering
>
> 447 Columbia St., Kamloops, BC V2C 2T3
>
> **mobile:** 250.819.1103

Walgren Soils Testing

1715 Stanley Street
Nelson, B.C. V1L 1R6
Phone: (250) 352-7110
Fax: (250) 352-1270

Invoice # 251097

Bill to:	
Ministry of Transportation and Infratructure	
John Braidford, Contract Manager	
342 - 447 Columbia Street	
Kamloops, BC	
V2C 2T3	

Date:	Feb. 28/25

Project:	**Chadwick Pit Investigation**
Contact	Al Mitchel
Contract #	**862CS2002**

Date	Description	Rate	Amount	Daily Total ($)
Feb. 18-22/25	B1 - 02 Washed Sieve Analysis	s. 17, s. 21		
Feb. 26-28/25	B1 - 04 Sand Equivalent			
Feb. 26-28/25	B1 - 14 Abrasion Loss by Micro Deval			
Feb.26-28/25	B1 - 11 Relative Density of Fine Agg.			
Feb. 26-28/25	B1 - 12 Relative Density of Coarse Agg.			
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
		Sub-total	25	$ 3,060.00

Expenses

Date	Description	Expense	Amount	Daily Total ($)
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
			Sub-total	$ -

Business Number: s. 17

All account balances over 30 Days will be applied a 2.0% Interest charge.

Time/Expenses Total	$ 3,060.00
GST (5%)	$ 153.00
Overall Total	**$ 3,213.00**

2025-05-14


CHADWICK 0864
CENTRAL KOOTENAY DISTRICT
354-6521
FOR INFO. CONTACT:
DISTRICT HIGHWAYS MANAGER
Ministry of Transportation
and Highways
Province of British Columbia

2025-05-14



2025-05-14



2025-05-14



2025-05-14



2025-05-14



2025-05-14



2025-05-14



2025-05-14


CHADWICK 0864
CENTRAL KOOTENAY DISTRICT
354-6521
FOR INFO. CONTACT:
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and Highways
Province of British Columbia

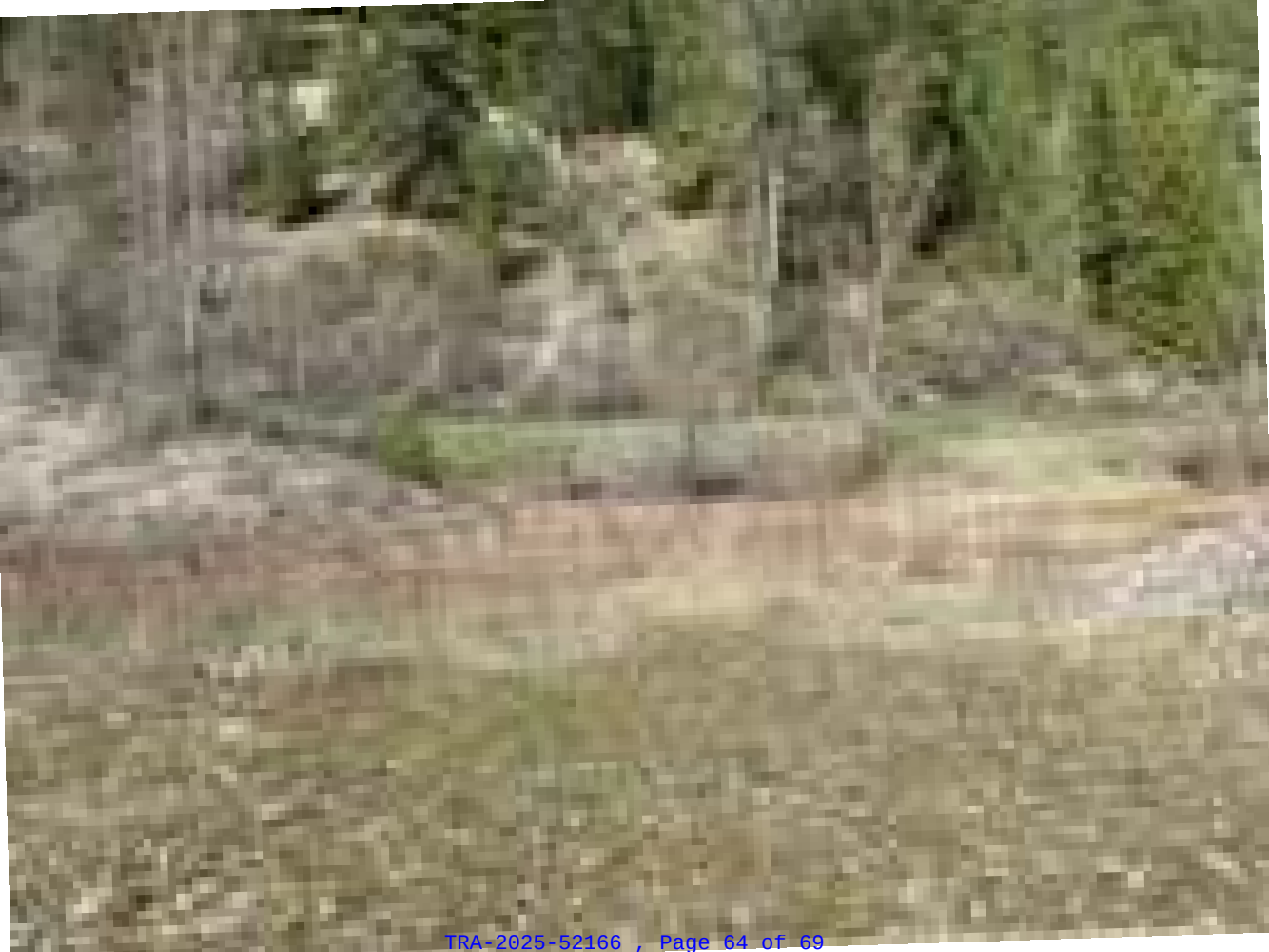

2025-04-10



2025-04-10




2025-04-10




2025-04-10

2025-04-10







2025-04-10

2025-04-10

