

Golder Associates Ltd.

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July 8 2004

04-1440-145

DC Properties Ltd.
c/o New Town Planning Services Inc.
1450 Pandosy Street
Kelowna, BC V1Y 1P3

Attention: Mr. Keith Funk

**RE: GEOTECHNICAL ASSESSMENT FOR
SUBDIVISION DEVELOPMENT PLAN
EAST BELLA VISTA HIGHLANDS – TURTLE MOUNTAIN
VERNON, B.C.**

Dear Sir:

As requested, Golder Associates Ltd. (Golder) has conducted a geotechnical assessment at the above referenced property (See Figure 1). The purpose of the assessment was to address the geotechnical issues related to development of the subject property by construction of residential single and multi-family units together with the associated infrastructure works including the construction of an access road off 39th Avenue.

It should be noted that the scope of this report is limited to the geotechnical aspects of the proposed subdivision development and does not include any investigations, analytical testing or assessments of possible soil and groundwater contamination, biological considerations or sediment control measures.

This report should be read in conjunction with “*Important Information and Limitations of This Report*” which is appended following the text. The reader’s attention is specifically drawn to this information, as it is essential for the proper use and interpretation of this report. The City of Vernon as approving regulatory authorities are designated as authorized users of this report and may rely upon its content for planning and development purposes.



1.0 METHODOLOGY

The field investigation was conducted on July 7, 2004 and consisted of excavating eleven test pits within the accessible areas of the upper flatter portions of the site and at the lower portion of the proposed access road, as shown on Figure 2. The test pits were extended to depths between 1.6 and 3.3 m below the existing ground surface using a rubber tired backhoe. The subsurface conditions encountered in each test pit were logged in the field by a member of our geotechnical staff. Detailed descriptions of the soil conditions encountered are summarized on the attached Record of Test Pits log sheets. Upon completion, each test pit was backfilled with the excavations spoils and compacted by tamping with the backhoe bucket.

Representative samples of the various soil strata encountered in the test pits were collected and brought back our Kelowna laboratory for further examination and testing. Laboratory testing consisted of moisture content determination and sulphate testing. The sulphate tests were conducted by Caro Environmental Services.

Upon receipt of topographical information for the subject property, a detailed ground reconnaissance was conducted on July 23, 2004. The reconnaissance included noting the site conditions as well as identifying potential geotechnical hazards such as past or recent slope instability, rockfall/rolling rock and areas of groundwater discharge.

2.0 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject area is located west and north of Alexis Park Drive and Bella Vista Road, respectively with agricultural land located immediately to the west and south west sides of the property. Figure 3 presents an overlay of the general site topography and legal boundaries relative to an aerial photograph for general reference purposes. Figure 4 presents several photographs showing various site conditions together with general comments.

Two bedrock ridges extend in a northeast-southwest direction along the west and east sides of the study area. The west and east ridges rise to a geodetic elevation of about 605 and 540 m, respectively.

Figures 2 and 3 delineate the approximate areas of exposed and/or shallow bedrock together with areas where previous earthwork was undertaken. The area where exposed and/or shallow bedrock exists is generally limited to the higher elevations and along the steeper slope portions of the site. The bedrock exposed at surface is generally weathered and fractured. The weathered and fractured bedrock in the areas designated as “*bedrock excavation*” on Figures 2 and 3 has been subexcavated to a more competent bedrock surface. Observations also indicate some gravel extraction was carried out along the west

side of the bedrock ridge as shown on Figures 2 and 3. Extraction of gravel was terminated at the underlying dense gravelly silty sand deposit (till-like deposit).

Further observations did not indicate any apparent evidence of slope instability and/or areas at risk from rockfall/rolling rock hazards, except for the area along the east toe of the steep slope at the west end of 39th Avenue in the vicinity of TP 1 where occasional angular rock fragments noted.

A wet depression (old pond) area was noted between the two bedrock ridges, as shown on Figures 2 and 3. At the time of the reconnaissance, standing water was not observed, however, water reed growth with thick underbrush growth together with a large diameter willow tree were noted within the limits of this area. No evidence of groundwater seepage was noted along the base of the gully located down-gradient of the depression.

A series of fill end-dumps were noted in the vicinity of TP 1 and along the toe of the bedrock slope north of TP 2 and west of the existing access road.

In general, the subject area is grassed covered with localized areas with tree and underbrush growth. Mature coniferous tree growth was generally limited to the slopes along the east side of the study area.

It is understood that it is proposed to develop the subject property by construction of residential single and multi-family units and associated infrastructure works including the construction of a site access road extending west off 39th Avenue. It is our understanding that the proposed subdivision will be serviced by the City of Vernon's sanitary sewer system and possibly the storm sewer system.

3.0 SUBSURFACE CONDITIONS

3.1 Bedrock Conditions

Golder previously has conducted several geotechnical investigations in the vicinity of the subject property for others. The results of those investigations indicate the west highland area overlooking Vernon is generally underlain by surficial and/or shallow bedrock. A review of the Geological Survey of Canada for the Vernon Map Area indicates that the bedrock within the study area is volcanic and generally consists of basaltic and andesite lava, and flow breccia, local sandstone and conglomerates.

3.2 Soil Deposits

The test pit results indicate that the shallow soil deposits encountered across the site generally consist of sand and gravel with varying a silt content, silty gravelly sand (till-like deposits) and silty clay.

A surficial silty clay strata was encountered at TP 1, TP 2, TP 3, TP 4 and TP 6, which varied in thickness from 0.6 and 3.0 m. The upper portion of the silty clay strata was noted to be desiccated to a depth of about 1.1 m at TP 3. Underlying the clay strata was granular deposits consisting of sand, silty sand and gravelly silty sand. Underlying the desiccated silty clay, a 1.2 m thickness of talus slope wash material was encountered at TP 2 which extended to a depth of 2.1 m.

At the remaining test pit locations, a compact to dense till-like deposit was encountered which generally consisted of gravelly silty sand with cobbles grading to a silty sand and gravel with occasional layers of gravelly sand and/or sand and gravel.

The moisture content of the silty clay strata varied between 15.4 percent for a desiccated sample to an average of 36.5 percent within the fissured silty clay. Within the compact to dense silty sand and gravel deposits, moisture contents varied between about 3.8 and 9.1 percent with an average of 6.1 percent. The remaining finer grained deposits such as silty sand and sand deposits, moisture contents varied between 14.2 and 15.9 percent.

Some surficial mineral fill was noted at TP 5, TP 9 and TP 11 which extended to a depth of 1.5 m. These fills are inferred to be part of the site earthworks that were previously carried out.

3.3 Groundwater Conditions

At the time of the investigation, groundwater seepage was not encountered within any of the test pits. It is anticipated that shallow groundwater seepage could be present along the base of the gullies, and bedrock depressions between both bedrock ridges, especially during spring freshets and during periods of sustained precipitation. It is also possible that minor groundwater flows could occur during the spring freshet along the till-like deposit contact.

4.0 SULPHATE TEST RESULTS

The following table summarizes sulphate test results carried out by Caro Environmental Services on selected samples.

| Test pit No. | Sample No./Depth, m | Percent Soluble Sulphates |
|--------------|---------------------|---------------------------|
| TP 1 | Sa 1 @ 0.5 | 0.030 |
| TP 1 | Sa 2 @ 1.6 | 0.250 |
| TP 3 | Sa 1 @ 2.0 | 0.001 |

5.0 GEOTECHNICAL ASSESSMENT AND RECOMMENDATIONS

5.1 Site Suitability and Residential Construction

At the time of this investigation, no geotechnical hazards were noted within the existing, undeveloped site. However, it is expected that development of the site with construction of the roadways and excavations for the residential buildings may create potential slope instability and rockfall/rolling rock. As such, it is recommended that site grading be such that surface runoff is not permitted to flow down slopes in an uncontrolled manner. Protection from rockfall/rolling rock hazards can include scaling bedrock cuts, removal of cobbles and boulders from the slopes and/or construction of rock protection works that can consist of either a catchment ditch and/or berm or a heavy gauge chain link fence. The depth or height of ditch and/or berm or chain link fence should be a minimum of 1.2 m. Depending on the height of the steep slopes or rock cuts and the orientation of these cuts with respect to rock mass characteristics such as joints, fractures and bedding, additional, more detailed examination and treatment measures may be needed to minimize the potential for rockfall or instability.

Where lots include or are located adjacent to slopes greater than 30 degrees, the residential building should be located within a safe building area. For current planning and design, it is recommended that the safe building line be established by extending an imaginary 1.75 horizontal to 1 vertical line up from the toe of the steep slope. The point where this line intersects the ground surface is defined as the safe building line and all structures as well as fills should be located or offset at or behind this line. It is recommended that the safe building line be established in the field by a competent professional survey company. The foregoing criteria can be waived if the residential building is founded on competent bedrock, as confirmed by detailed examination of the foundation area and the slopes below the residential site conducted by an experienced geotechnical engineer.

Based on our observations of the extent of the rolling rock within the vicinity of TP 1, it is our opinion that proposed lots located downslope of the designated hazard line are not likely to be subject to a rockfall/rolling rock hazard from the relatively steep bedrock face that is located to the west. However, it is recommended that consideration be given to scaling the steep bedrock slopes west of TP1.

Considering the proposed construction for the extension of 39th Avenue to provide access to the property, it is recommended that a catchment ditch/berm be constructed along the west side of the roadway. It is recommended that the construction of such works be implemented according to the Ministry of Transportation (MoT) guidelines (see MoT Section 440.C for solid rock cut sections).

5.2 Foundation Design

Excluding the surficial organic soils and any fills, the proposed residential structures can be supported on conventional strip and/or spread footings founded on the native loose to dense granular deposits, stiff layered clay strata, competent bedrock or engineered fills. Within the clay deposits, all footings should extend to a minimum depth of 1.2 m below the existing ground surface such that the base of the footings is not founded within the upper desiccated native clay. The desiccated clay strata is subject to volume change as a result of changes in soil moisture content, which can create differential swelling and/or shrinkage movements beneath the building foundations resulting in potential distress to the foundations and structure.

For preliminary design purposes, an allowable bearing pressure of 95 kPa may be used in design of the footings founded on the loose to dense granular deposits or compacted granular fills (see Section 5.4.2). On bedrock, an allowable bearing of 240 kPa may be considered. Provided that the foundation materials are not loosened or disturbed, it is anticipated that foundations designed for these bearing pressures will be subject to settlements of less than 25 mm.

However, it is recommended that foundation support of structures partially on fill or the loose to dense natural soils and partially on intact rock should be avoided to minimize the potential for abrupt differential settlement at the boundary between the rock and soil/fill foundation support of the building. Where complete support either on rock or on suitable fill or natural soils is not possible, it is recommended that provision be made for additional reinforcing or other suitable treatment to minimize the impact of potential abrupt differential settlement of up to 25 mm.

It should be noted that the minimum footing width should be in accordance with the B.C. Building Code requirements. The foundation subgrade soils should be inspected by

experienced geotechnical personnel and confirmed as suitable prior to footing construction.

The footings may also be founded on compacted granular fills placed and compacted in accordance with the recommendations presented in Section 5.4.2.

5.3 Retaining Walls and Below Grade Basement Walls

Permanent retaining walls, basements or other below grade structures that can not tolerate or are restrained from movements should be designed considering a coefficient of earth pressure at rest of 0.45. Retaining walls that can tolerate deflections of 25 mm in 3.0 m of wall height may be designed using a coefficient of active earth pressure of 0.3. A soil unit weight of 2000 kg per cu. m may be used in the design calculation.

Free draining backfill should be placed behind the retaining wall and a positive drainage system should be provided behind the walls to prevent possible build up of hydrostatic pressures. This material should be compacted using only lightweight compaction equipment.

5.4 General Site Development

The following provides general comments and recommendations regarding site development. It should be noted that a specific geotechnical investigation is recommended for proposed residential structures to further determine specific subsurface conditions at the proposed building footprint.

5.4.1 Stripping

It is recommended that all vegetation, surficial organic soils and fills be completely subexcavated from beneath the proposed building sites and roadways as well as any site grade fill areas. If desired, the surficial organic soils could be stockpiled and used for landscaping purposes. This material is not suitable for use as general grade/embankment fills.

5.4.2 Structural/Road Embankment Fills

Structural fills used beneath buildings can consist of imported 150 mm minus pit run sand and gravel or on site excavation spoil material consisting of native granular soils and/or well graded blast rock. Road embankment fills can consist of any on site excavation spoil material excluding the organic soils and desiccated clay.

All structural/road embankment fills should be placed in horizontal lifts not exceeding 300 mm in thickness and should be compacted to 90 and 95 percent of modified Proctor maximum dry density (ASTM D1557), respectively.

Structural/road embankment fills constructed on sloping ground should be keyed into the slope in a continuous series of steps, extended a minimum of 1.0 m width into the natural slope. This treatment will minimize the risk of a potential weak zone or slip plane between the fills and native slope soils. It is anticipated that most of the material from the stepped “key” excavation can be incorporated in the adjoining embankment fills.

No organic soils or frozen material should be placed in the embankment. In addition, embankment fills or the pavement structure should not be placed on the foundation subgrade or on the embankment if these surfaces are frozen. Embankment materials should also not be placed into ponded water or excessively wet soil or fill surfaces or on surfaces covered with snow.

It is recommended that the fill surfaces should be crowned or sloped during and after construction to avoid ponding of water.

5.4.3 Cut and Fill Slopes

It is recommended that temporary cut slopes in the soils observed at the site be developed at angles no steeper than 1 horizontal to 1 vertical for dry conditions. Steeper slopes may be considered provided suitable shoring is used.

Permanent cut and un-reinforced fill slopes should be constructed at angles no steeper than 1.5 horizontal to 1 vertical. These slopes should be provided with a suitable vegetative cover to minimize potential saturation and subsequent surface sloughing or raveling.

For permanent excavations in bedrock encountered at the site, it is recommended that a design cut slope of not more than ¼ horizontal to 1 vertical should be considered. It is also recommended that a geotechnical engineer should inspect the exposed surface during excavation of rock slopes to determine whether it is necessary to consider rock bolting, flatter slopes and/or benches to provide a stable rock slope configuration.

It is strongly recommended that blasting design and sequencing be selected to minimize the potential for loosening, fracturing or over-break beyond the final rock cut face. Depending upon the height of the steep rock cuts and the potential for rockfall or raveling, provision may be required for a suitable catchment ditch at the toe of the cut slope (see MoT Section 440.C for solid rock cut sections).

Depending upon the degree of weathering or fracturing of the rock, it is expected that some excavation will be possible with high capacity excavators equipped with rippers. However, it is expected that majority of the bedrock will require conventional drilling and blasting techniques.

To minimize possible damage to the adjacent properties, it will be necessary to limit the ground vibrations created from blasting to a specified limit of 50 mm/sec or less. The ground vibrations can be controlled to this level by using normal good industry practice in design and conduct of blasting procedures.

It is recommended that vibration monitoring be carried out to confirm this criteria is followed. Preblast surveys of existing homes in the immediate vicinity of the blast should also be carried out. In addition, strict precautions should be in place to prevent fly rock damage to neighboring buildings, through use of blast mats or other suitable measures.

5.4.4 Underground Utilities

The recommended temporary cut slope for trench excavations in the soils encountered at this site is 1 horizontal to 1 vertical. Near vertical cuts may be employed providing a "cage" or other approved support system is used. If near vertical cuts are utilized, construction traffic should not be permitted adjacent to the excavation unless shoring systems are designed to carry the resulting surcharge loading.

Groundwater seepage is not expected to be encountered in the utility trenches. Should any seepage be encountered, conventional sump techniques will provide an adequate means of controlling seepage in the utility trenches.

To provide even support of the pipes over various subgrade conditions, it is recommended that a sand bedding layer be placed beneath the pipe. This bedding layer should be at least 200 mm thick.

The excavation spoil materials consisting of granular and/or clay deposits will be suitable for use as backfill in the trenches. In roadway areas where clay is encountered, it is recommended that the clay spoils be used for trench backfill to maintain similar soil conditions to non-trenched roadway areas. It is also recommended that all clay peaks between service trenches and/or abrupt changes in the trench side slopes be eliminated or/or flattened. This will help to minimize differential movements within the roadway during the spring thaw. The surficial organic soils are not considered suitable for trench backfill material.

5.5 Roadways

The California Bearing Ratio (CBR) values for compacted shot rock fill and/or intact bedrock will be greater than 6. In areas where the residential roads overlie these subgrade conditions, the pavement structure should be designed in accordance with the minimum City of Vernon's requirements as follows.

| | |
|---------------------|--------|
| Asphalt | 75 mm |
| Crushed Gravel Base | 50 mm |
| Pitrun Subbase | 150 mm |

Within areas where the subgrade will be founded within silty clay deposits, the pavement structure should consist of the following:

| | |
|-----------------------------------|--------|
| Asphalt | 75 mm |
| Crushed Gravel Base | 50 mm |
| Pitrun Subbase | 150 mm |
| Supplemental Subbase (for CBR <3) | 300 mm |

5.6 Site and Subsurface Drainage

It should be noted that development of the area will increase the potential for surface flows to concentrate. These concentrated surface flows from driveways and roofs must be collected and disposed of in an approved manner. Under no circumstance should this water be permitted to discharge or flow in an uncontrolled manner down soil slopes.

Perimeter foundation drains should also be provided around all homes as well as behind retaining walls.

Considering the silty clay deposits along the south portion of the site together with surficial and/or shallow bedrock, disposal of collected surface and roof water should not be discharged using conventional drywells, rockpits or infiltration trenches. It is recommended that surface, roof runoff and perimeter drains be connected to a storm sewer system.

Final site grading should provide for positive flow of surface runoff away from the proposed homes and foundation walls. Final grading alongside the house foundations should be carried out such that positive drainage will be maintained even when considering settlement of the backfill materials.

5.7 Sulphate Tests

According to the CSA requirements for concrete subject to sulphate attack, these results indicate the potential degree of sulphate attack in contact with the tested soils is negligible, except for TP 1, Sa2 where the sample indicates severe sulphate conditions. As noted in TP 2 at a depth of 0.1 to 0.9 m, a white precipitate was observed within the desiccated silty clay. This condition is typical of for soils having a high sulphate concentration. It should be noted that sulphate concentrations generally increase with repeated wetting and drying cycles which results in a higher potential for sulphate attack at ground surface. Based on this information, it is recommended that consideration be given in using concrete that provides protection for an S-2 class of exposure for all manhole structures and foundations located within the silty clay deposits.

6.0 INSPECTION AND TESTING SERVICES

It is recommended that provisions be made for a geotechnical engineer to inspect and approve the exposed subgrade soils for structures during construction. Further, it is recommended that insitu density tests be carried out in any granular fills placed to confirm satisfactory compaction is achieved.

We trust the foregoing provides you with the information that you require at this time. Should you require additional information or have any questions, please do not hesitate to contact the undersigned at your earliest convenience.

Yours very truly,

GOLDER ASSOCIATES LTD.

Roger Therrien, AScT
Senior Geotechnical Technologist

Reviewed by G. Imada, P. Eng.
Associate & Senior Geotechnical Engineer

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IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Standard of Care: Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing in British Columbia, subject to the time limits and physical constraints applicable to this report. No other warranty, express or implied is made.

Basis and Use of the Report: This report has been prepared for the specific site, design objective, development and purpose described to Golder by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of the report may alter the validity of the report. Golder can not be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. *No other party may use or rely on this report or any portion thereof without Golder's express written consent. Golder will consent to any reasonable request by the Client to approve the use of this report by other parties as Approved Users.* The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, and only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client can not rely upon the electronic media versions of Golder's report or other work products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. *In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Golder can not be responsible for use by any party of portions of the report without reference to the entire report.*

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs, techniques and equipment choice, scheduling and sequence of operations would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work.

IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT (CONTINUED)

Soil, Rock and Groundwater Conditions: Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgement, and boundaries between different soil, rock or geologic types or units may be transitional rather than abrupt. Accordingly, Golder does not warrant or guarantee the exactness of the descriptions

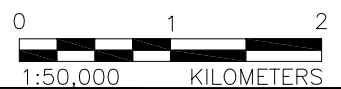
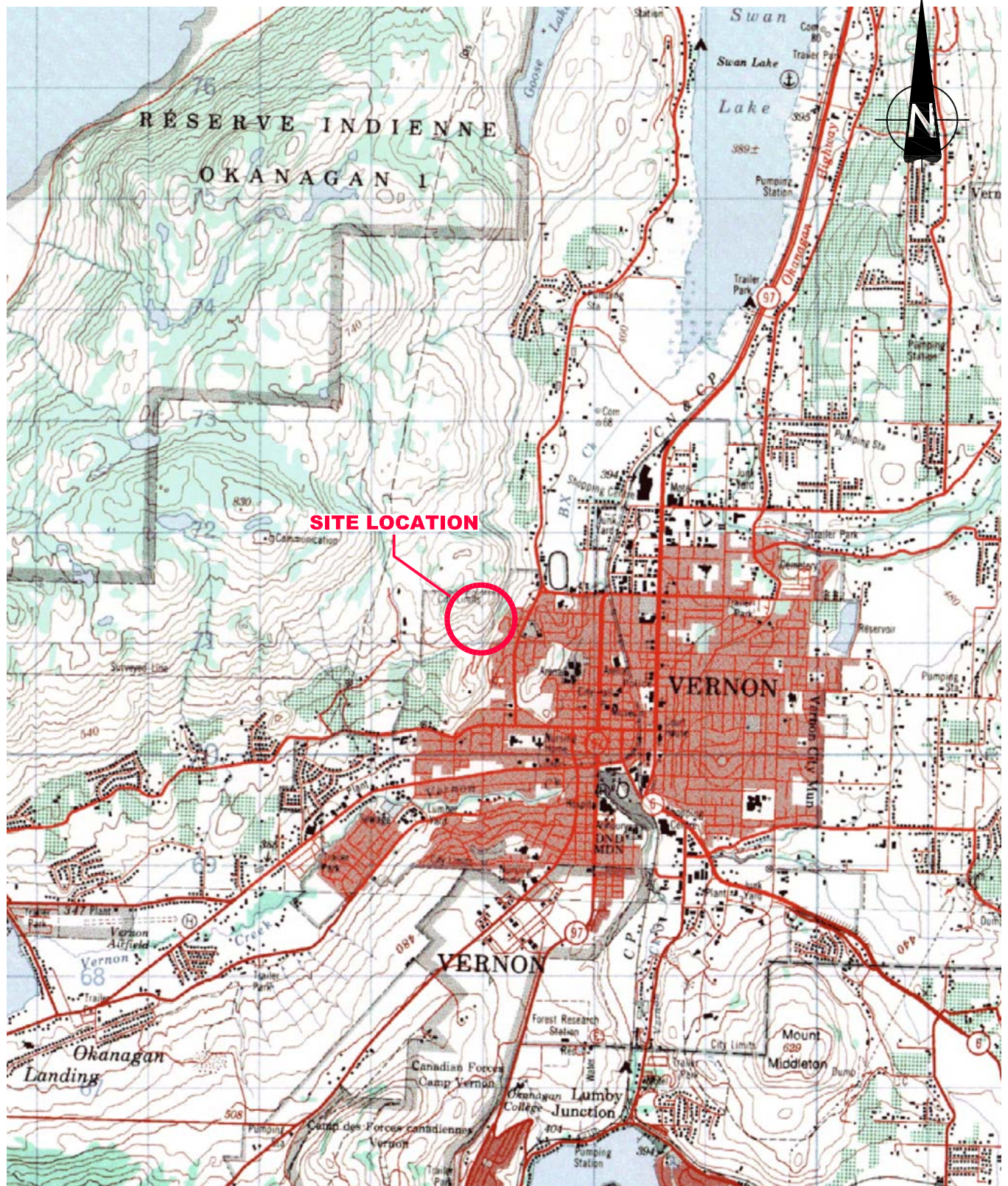
Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect certain conditions. The environmental, geologic, geotechnical, geochemical and hydrogeologic conditions that Golder interprets to exist between sampling points may differ from those that actually exist.

Groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their measurement. Groundwater conditions may vary between reported locations and can be affected by annual, seasonal and special meteorological conditions or tidal fluctuations. Groundwater conditions may also be altered by construction activity on or in the vicinity of the project site.

Sample Disposal: All contaminated samples and materials shall remain the property and responsibility of the Client for proper disposal. Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense.

Follow-Up and Construction Services: All details of the design and proposed construction may not be known at the time of submission of Golder's report. Golder should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of Golder's report.

During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Golder's report. Adequate field review, observation and testing during construction is necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities.



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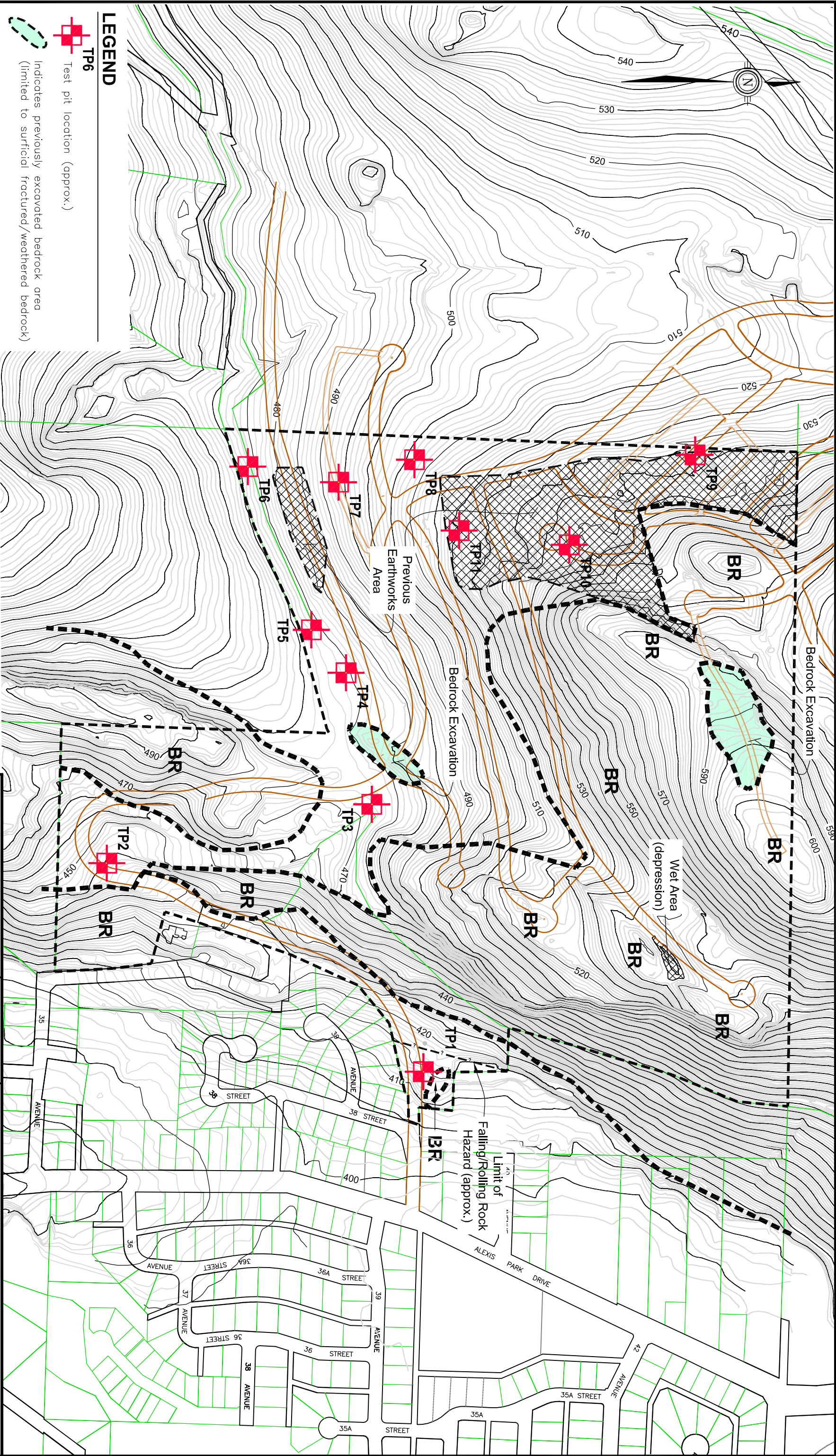
KEY PLAN

East Bella Vista - Vernon

FIGURE

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| PROJECT No. | 04-1440-145 |
| REV. | 0 |

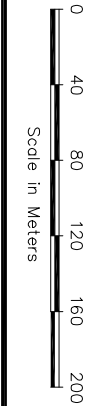



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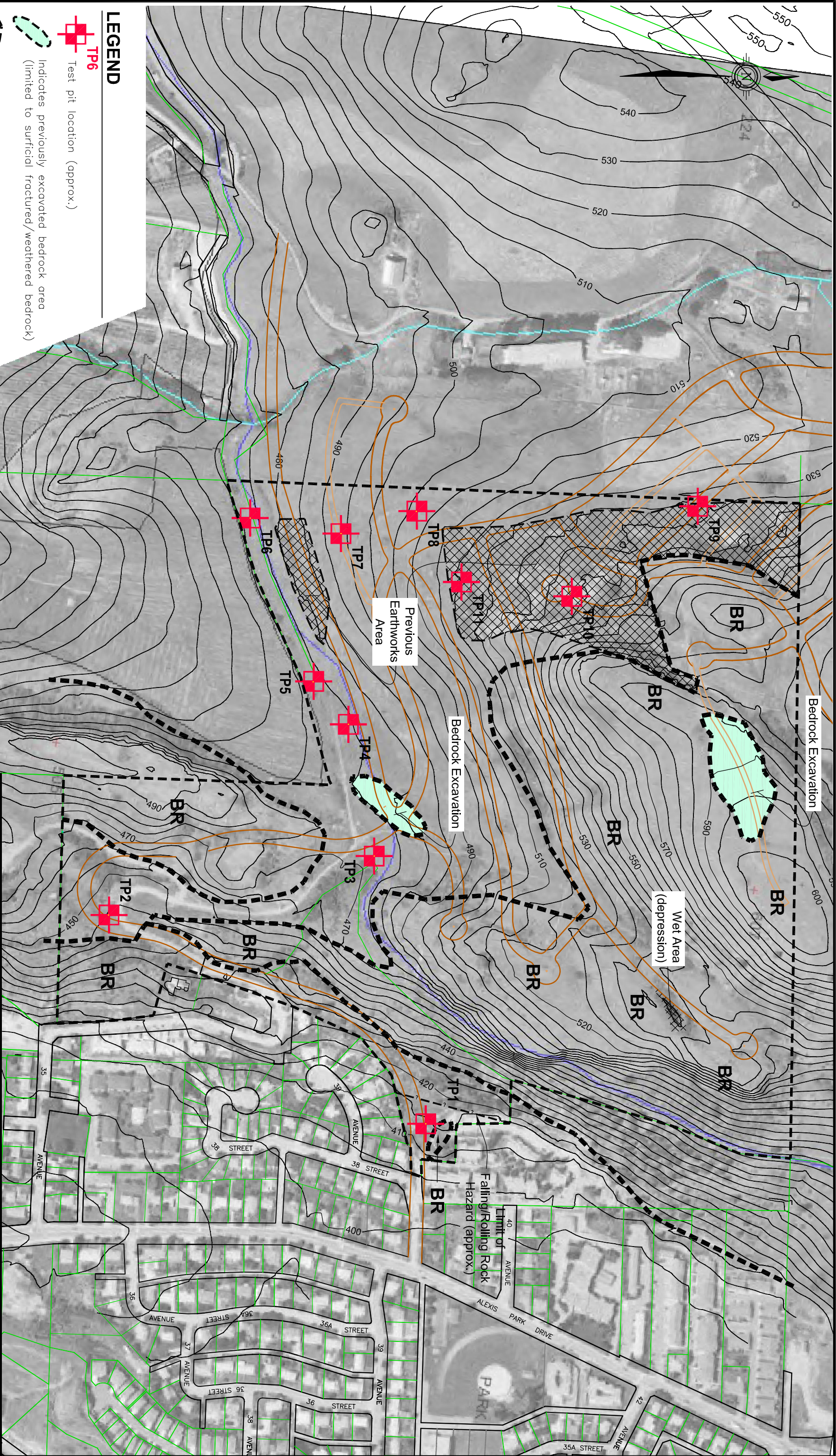
- TP6**
Test pit location (approx.)
- Indicates previously excavated bedrock area (limited to surficial fractured/weathered bedrock)
- BR**
Indicates area of surface and/or shallow bedrock (approx.)

REFERENCES

1.) Topography and legal base provided by New Town Planning Services



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|  Golder Associates Kelowna, British Columbia | FILE No. | 2004_SITEPLAN.DWG | TITLE | |
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| TEST PIT LOCATION PLAN | | | | DC PROPERTIES |
| | | | | FIGURE |
| | | | | 2 |

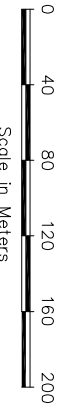



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- TP6**
Test pit location (approx.)
- Indicates previously excavated bedrock area (limited to surficial fractured/weathered bedrock)
- BR**
Indicates area of surface and/or shallow bedrock (approx.)

REFERENCES

1.) Topography and legal base provided by New Town Planning Services



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|  Golder Associates Kelowna, British Columbia | | SCALE | 1:4000 | TITLE TEST PITS AND AIR PHOTO OVERLAY | |
| FILE No. | 2004_SITEPLAN.DWG | DATE | 7/23/2004 | | |
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| PROJECT No. | 04-1440-145 | REV. | 0 | DC PROPERTIES | |
| | | | | FIGURE | 3 |



LOOKING NORTH FROM TEST PIT 2 AT STEEP BEDROCK FACE ALONG EAST SIDE OF THE STUDY AREA. OCCASIONAL SCATTERING OF OLD, ANGULAR FALLING ROCK FRAGMENTS ALONG THE TOE OF THE BEDROCK AND TALUS SLOPE.



LOOKING NORTH FROM TEST PIT 4 AT BEDROCK RIDGE THAT EXTENDS TO AN ELEVATION OF ABOUT 590m. NOTE THE CHANGE IN GRASS COVER INDICATING APPROXIMATE SOIL/BEDROCK CONTACT.



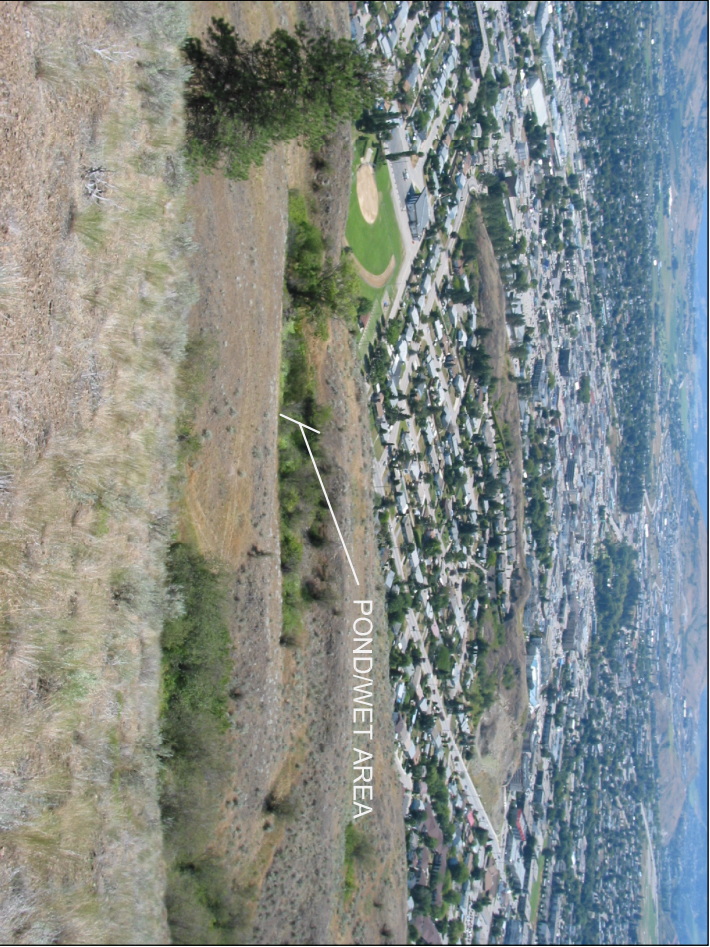
LOOKING NORTH EAST FROM TEST PIT 6 AT PREVIOUS EARTHWORKS AREA LOCATED NEAR THE SOUTH WEST CORNER OF THE STUDY AREA.




LOOKING NORTH EAST FROM TEST PIT 11 AT EXCAVATION SIDE SLOPE FROM PREVIOUS EXTRACTION OPERATION. EXPOSED SIDE SLOPE MATERIAL GENERALLY CONSISTS OF DENSE GREY SILTY SAND AND GRAVEL (TILL-LIKE) AT OVERALL SLOPE ANGLES OF ABOUT 50° TO 70°.



LOOKING NORTH EAST FROM TOP OF BEDROCK RIDGE SHOWING THE PREVIOUS STRIPPING OF THE UPPER FRACTURED/WEATHERED BEDROCK SURFACE.



LOOKING EAST, SOUTH EAST ONTO EXISTING WET AREA/DEPRESSION WHERE REED GROWTH AND LARGE WILLOW TREE AND UNDERBRUSH EXISTS.

| | | | | | | | |
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| FILE No. | | Site Photos.DWG | | DATE | 7/23/2004 | SITE PHOTOGRAPHS (July 23, 2004) | |
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| | | | | | | FIGURE | 4 |