

VISUAL IMPACT ANALYSIS **REPORT**

Freymond Quarry
2287 Bay Lake Road
Part of Lots 51 & 52, Concession W.H.R.
Township of Faraday, County of Hastings

Date:

December 2016

Prepared for:

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Our File 1515B

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Appendix 1: CURRICULUM VITAE

1.0 PROJECT OVERVIEW

MHBC was retained to complete a visual impact analysis of the proposed Freymond Quarry, located on lands described as Part of Lots 51 and 52, Concession W.H.R. in the Township of Faraday, County of Hastings. See Figure 1 for the location of the subject site (proposed licensed boundary).

The applicant of the proposed quarry owns approximately 128 hectares of land, of which only 33.3 hectares is proposed to be licensed under the Aggregate Resources Act. Of the 33.3 hectares proposed to be licensed only 27.5 hectares is proposed for extraction. The remaining 5.8 hectares of the proposed license area will consist of the following:

- To the north, west and south of the proposed extraction area there will be either a 15 metre or 30 metre setback. Within this area no site disturbance is permitted and the existing trees / vegetation will be maintained; and
- To the east of the proposed extraction area there will be a 6 metre high overburden storage area that will be planted with red pine to provide a noise and visual barrier. To the south of the overburden storage area there is a proposed storm water management pond that will be planted with perimeter trees and shrubs.

The proposed Freymond Quarry is proposed to be operated in 4 phases. The phasing plan has been designed to minimize the active area of the proposed quarry and maximize rehabilitation. During operations the existing trees will be maintained within each phase until the next area is required for extraction and once extraction is finished the area will be rehabilitated.

See Figure 2 for the proposed phasing plan for the quarry.

Based on the phasing plan, the following are the timelines for each phase assuming the maximum of 300,000 tonnes is extracted each year. It is not anticipated that the maximum of 300,000 tonnes would be extracted each year and as a result the following timelines are the soonest each phase could commence. However it is anticipated that each phase would typically take longer than noted below:

- Phase 1: 13 years of extraction
- Phase 2: Starts year 14 or later
- Phase 3: Starts year 27 or later
- Phase 4: Starts year 44 or later

2.0 VISUAL IMPACT ANALYSIS

When the application was originally submitted in 2015, members of the community raised concerns regarding potential visual impacts of the proposed quarry. To analyze the potential for visual impact the following stages of the proposed quarry have been considered:

- Site preparation, tree clearing and drilling operations. These activities are short term activities and are phased throughout the operation. These activities occur at existing grade. The existing elevations of the subject site vary from 392 metres above sea level (masl) along the western boundary of the site to 335 masl along the eastern boundary of the site. Although these activities occur at grade, the existing trees (+/- 15m in height) within the setback areas around the subject site or within future areas to be extracted will be maintained and used to help screen visual impacts of the operation.
- The next activity is extraction, processing, stockpiling and shipping of aggregate. These activities are longer term activities that are located on the proposed quarry floor. As noted in the phasing diagram all processing, stockpiling and shipping of aggregate will occur in Phase 1 initially and then located in Phase 2 for the remainder of the operation. Aggregate extracted from Phases 3 and 4 will be transported on the quarry floor back to the processing area in Phase 2. These activities will occur at an elevation of 334 masl in Phase 1 and 337 masl in Phase 2. Since these activities are located on the quarry floor well below existing grade they will be screened from visual impacts.
- The final stage of the operation is rehabilitation of the site predominately back to a forested condition. These activities are located on the rehabilitated quarry floor and the final landform will be located at elevation from 341 masl in the western portion of the site to 335 masl along the eastern perimeter of the site.

This report has been prepared using a geographic information system viewshed analysis using a digital elevation model that accounts for existing ground elevations and existing tree cover in the area.

3.0 CONCLUSIONS

Based on the visual impact analysis, all of the surrounding observer locations will not be able to see the extraction, processing, stockpiling and shipping of aggregate on-site or the final rehabilitated site due to the topography in the area, existing tree cover and the elevations of the proposed quarry floor.

Some of the observer locations will be able to see small areas of the proposed quarry, only when site preparation (e.g. construction equipment) and drilling operations occur at grade within a defined area. These views will be for a limited area, for a limited duration and will be located some distance from the subject site. The ability to view construction equipment for this limited area, for a limited duration from a distant view is typical of views that may exist in a rural area and overall the quarry will not result in any unacceptable visual impacts on the surrounding community.

The report includes the following figures to illustrate the results of the viewshed analysis.

- Figure 3 illustrates the observer points that have been modelled as part of the viewshed analysis. The municipal address of each observer location is provided in the table shown on Figure 3;
- Figures 4a to 4i illustrates all of the observer locations that have no view of the subject site under existing and future conditions due to the surrounding topography and existing vegetation;
- Figures 5a to 5g illustrates all of the observer locations that can currently see the top of the tree line on a portion of the subject site, however will not be able to see any of the equipment working at existing grade or any of the operation located on the quarry floor due to the retention of existing trees outside of the proposed extraction area and existing topography; and
- Figures 6a to 6q illustrates all of the observer locations that will be able to see equipment working at grade for site preparation and drilling, however will not be able to see any of the proposed operation located on the quarry floor due to the retention of existing trees outside of the proposed extraction area and existing topography.

Yours truly,

MHBC



Brian Zeman, BES, MCIP, RPP
President



Nick A. Miele, BLA, OALA, CSLA, MALA, ISA
Partner

Figure 1

November 2016

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

County of Hastings

LOCATION MAP

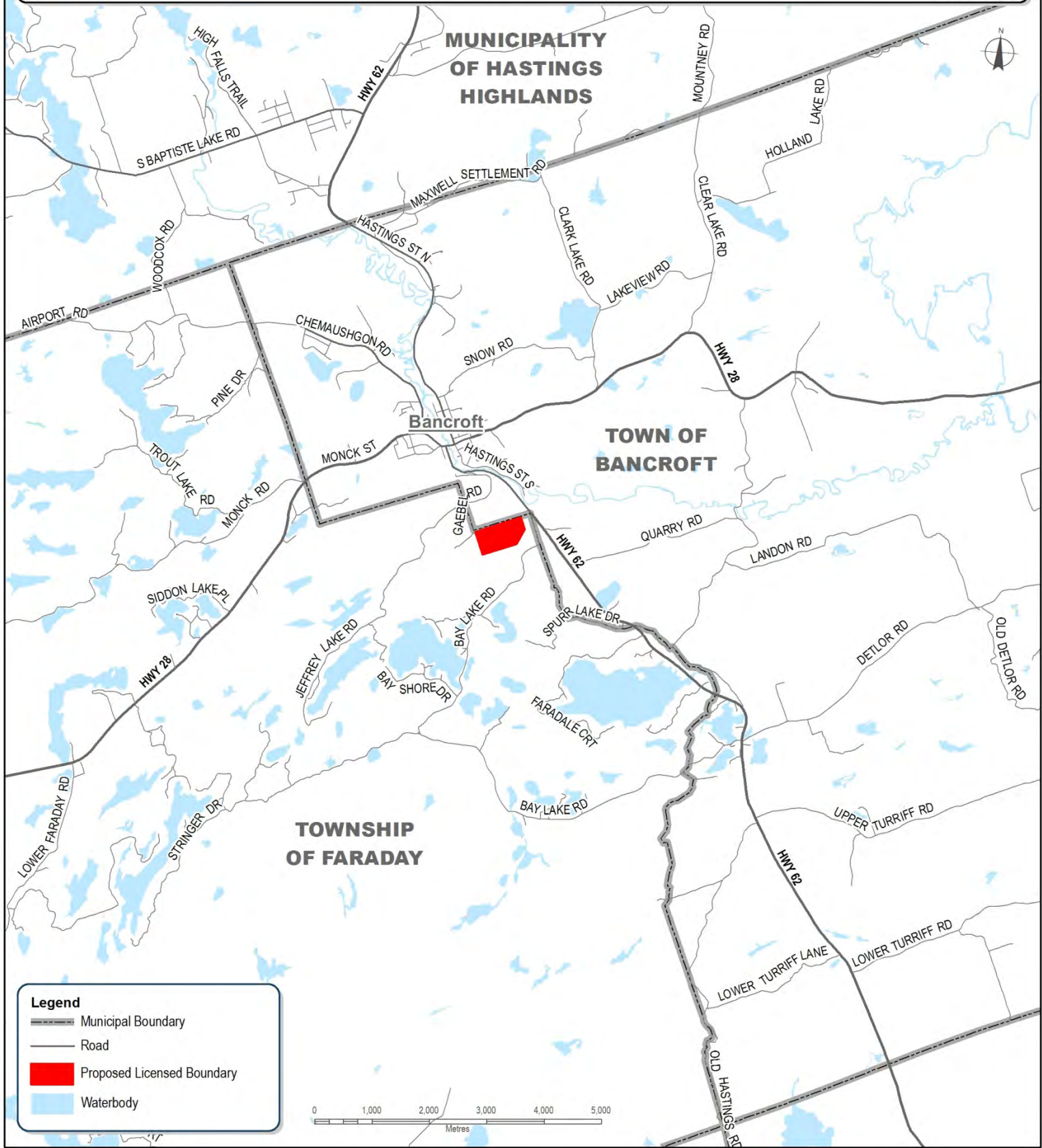


Figure 2

CONCEPTUAL PHASING PLAN

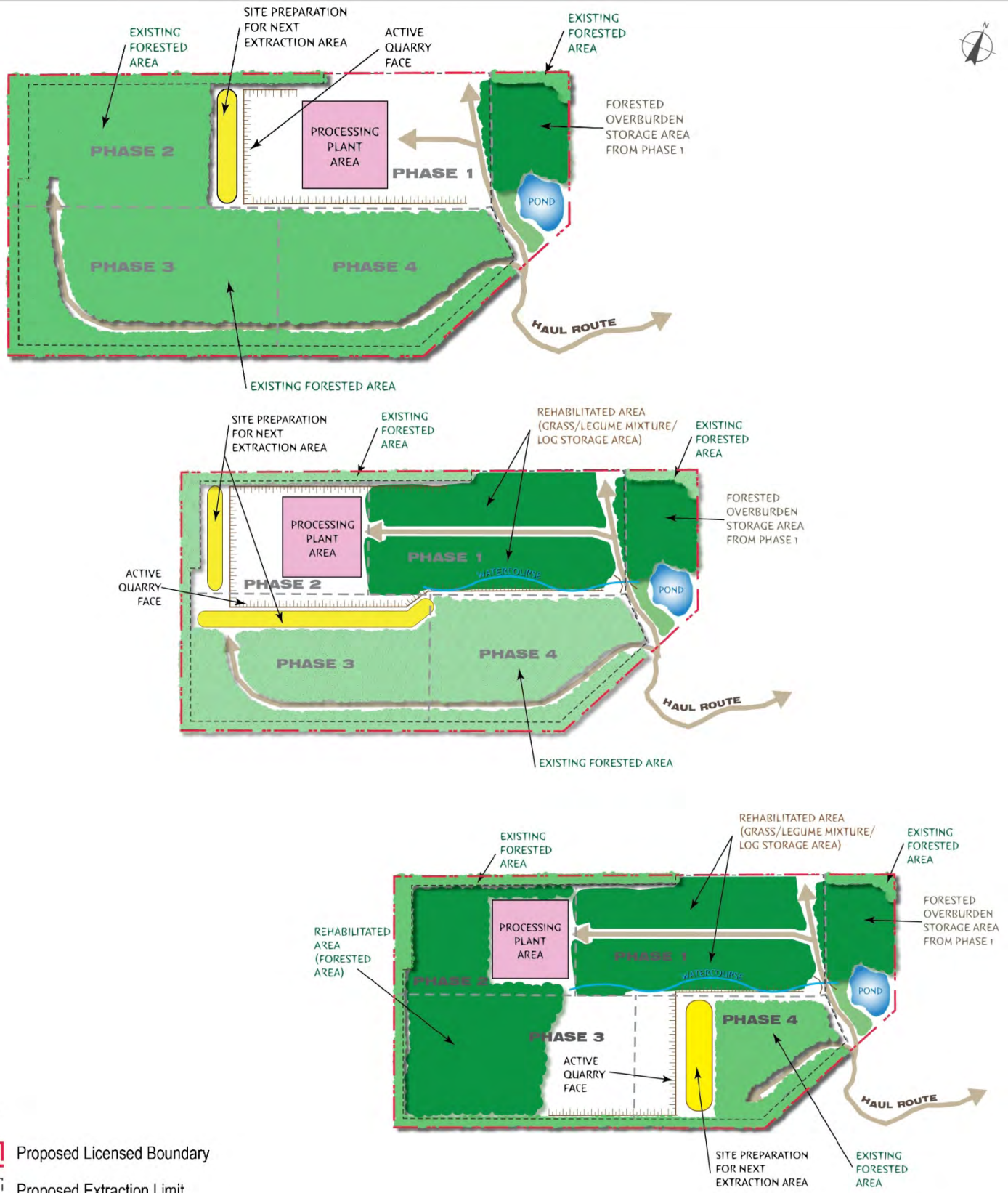


Figure 3

November 2016

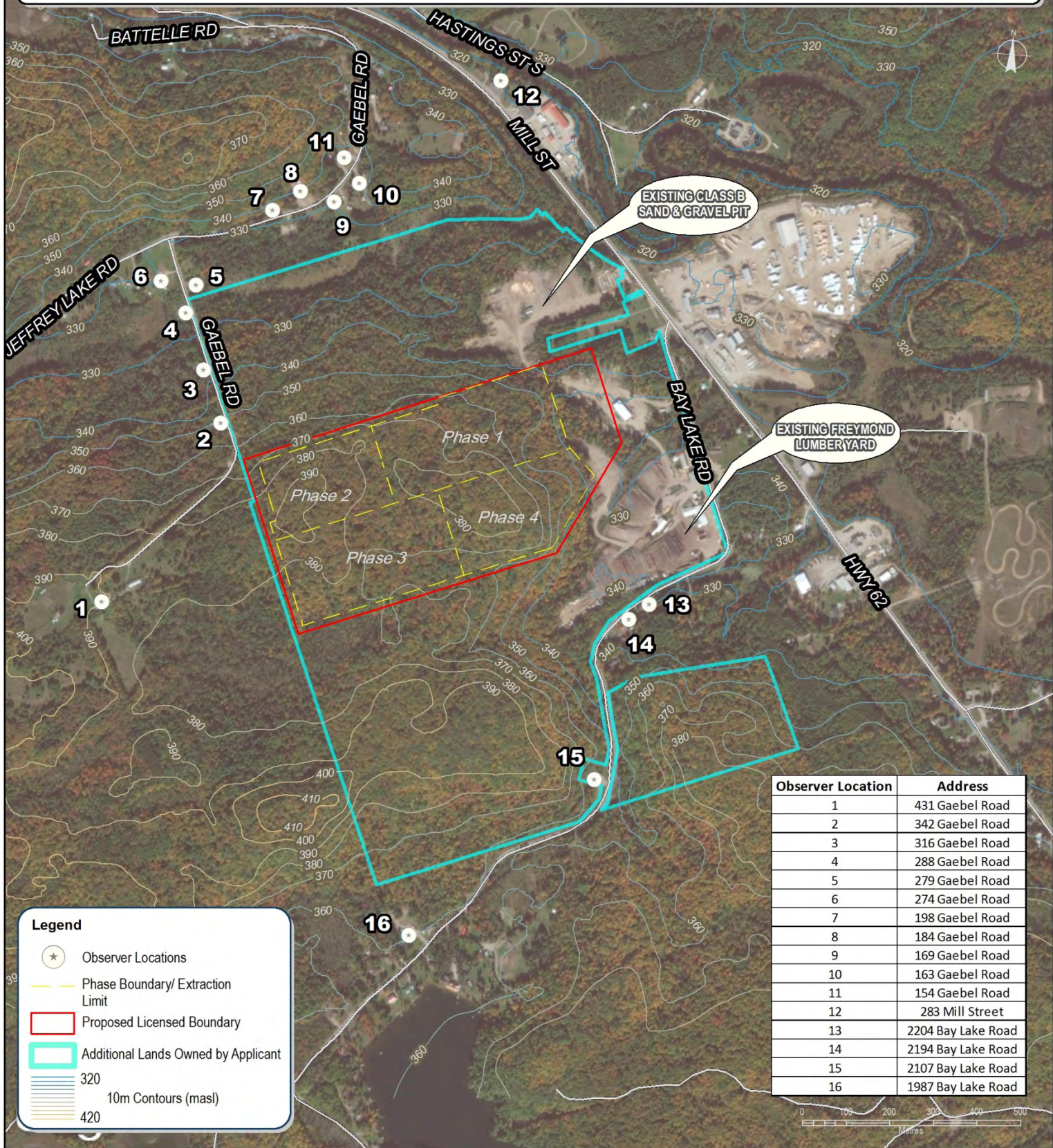
OBSERVER LOCATIONS USED FOR VIEWSHED ANALYSIS

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

County of Hastings



Legend

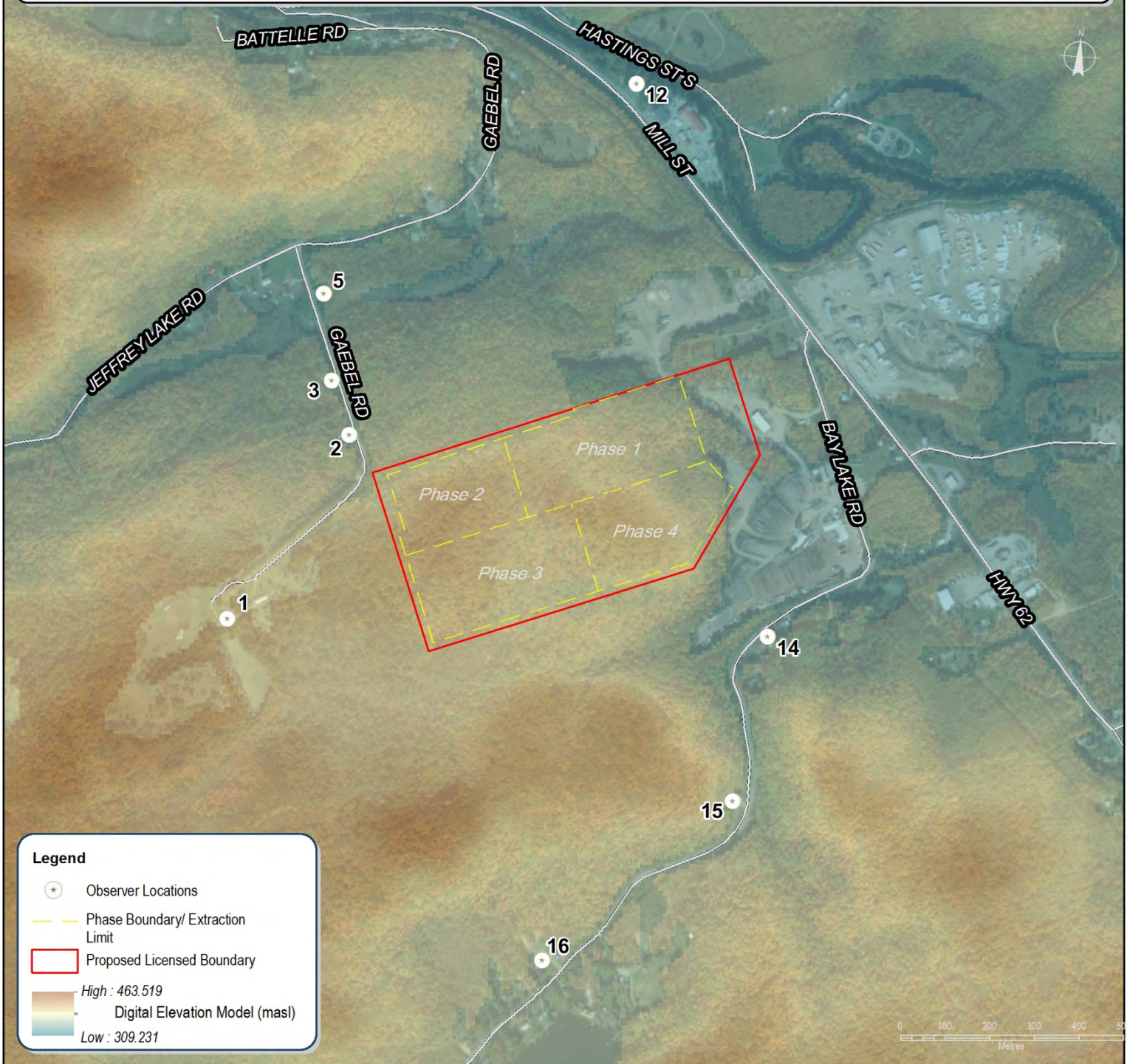
- Observer Locations
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Additional Lands Owned by Applicant
- 320
- 10m Contours (masl)
- 420

Observer Location	Address
1	431 Gaebel Road
2	342 Gaebel Road
3	316 Gaebel Road
4	288 Gaebel Road
5	279 Gaebel Road
6	274 Gaebel Road
7	198 Gaebel Road
8	184 Gaebel Road
9	169 Gaebel Road
10	163 Gaebel Road
11	154 Gaebel Road
12	283 Mill Street
13	2204 Bay Lake Road
14	2194 Bay Lake Road
15	2107 Bay Lake Road
16	1987 Bay Lake Road

Figure 4a

OBSERVER LOCATIONS THAT CANNOT SEE THE PROPOSED OPERATION UNDER EXISTING & FUTURE CONDITIONS

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Freymond Quarry
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Township of Faraday,
County of Hastings



- Of the 16 observer locations, 8 cannot see the proposed operation due to existing topography and tree cover.
- The 8 observer locations that cannot see the extraction area are shown on this figure.
- Figures 4b - 4i illustrates the viewshed for each of the observer locations.

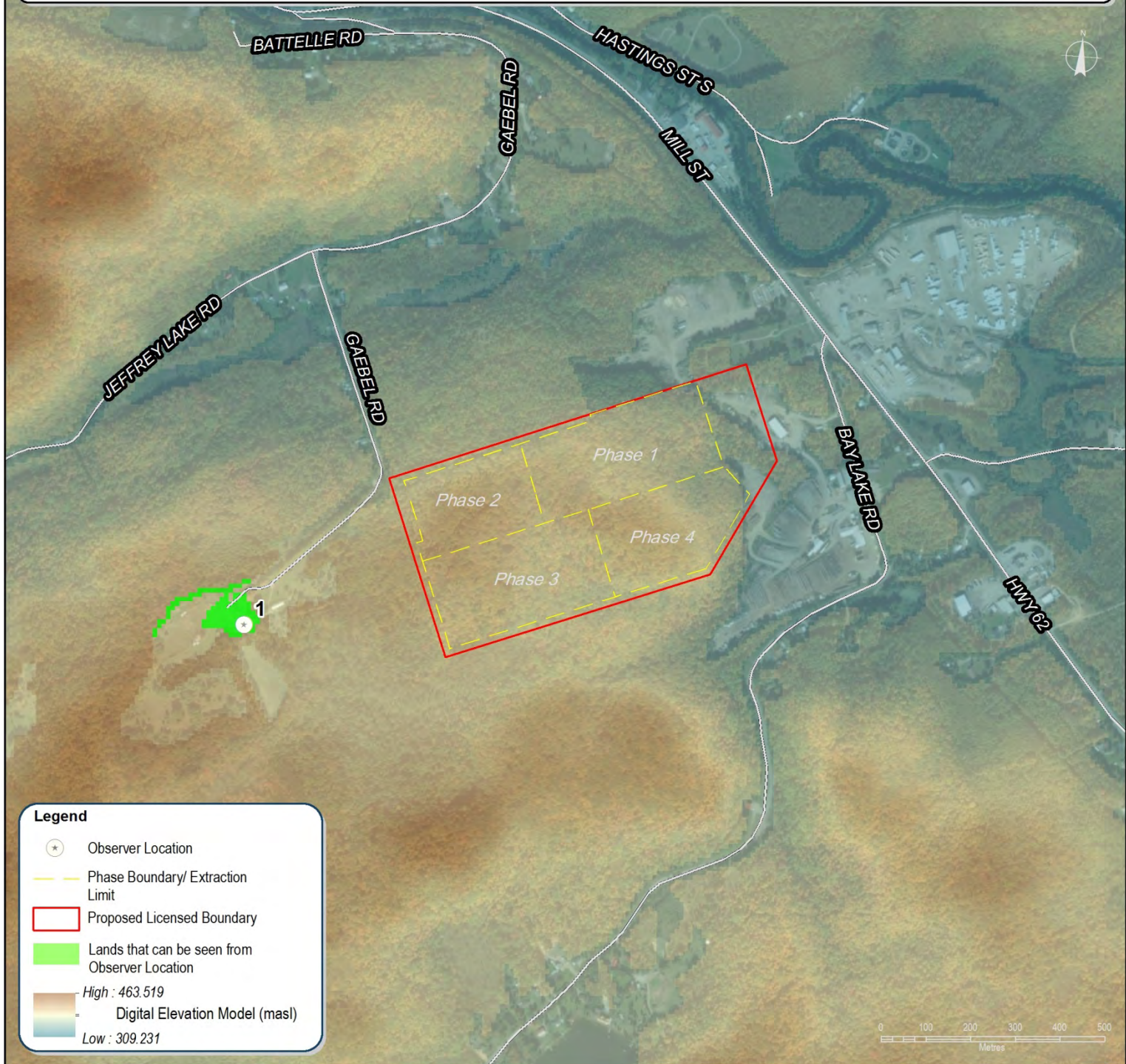
OBSERVER 1: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

County of Hastings



- Observer location 1 is located at an elevation of 389.7 masl and is surrounded by existing forested area.
- Based on the viewshed analysis this observer location has a limited viewshed and can only see the lands immediately surrounding the observer location.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

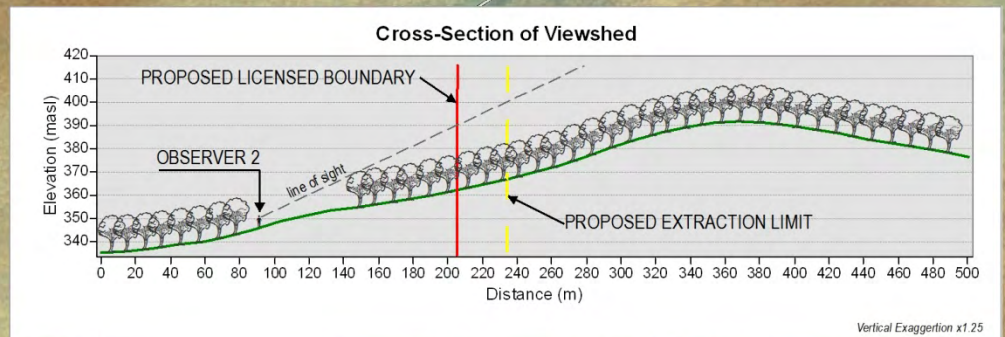
OBSERVER 2: EXISTING VIEWSHED

Freymond Quarry
 RR#1, 2287 Bay Lake Road
 Township of Faraday,
 County of Hastings



Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
Digital Elevation Model (masl)
Low : 309.231



- Observer location 2 is located at an elevation of 343.7 masl and is surrounded by existing forested area.
- Based on the viewshed analysis this observer location has a limited viewshed and can essentially only see the lands immediately surrounding the observer location. This is further illustrated on the cross-section of the viewshed.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

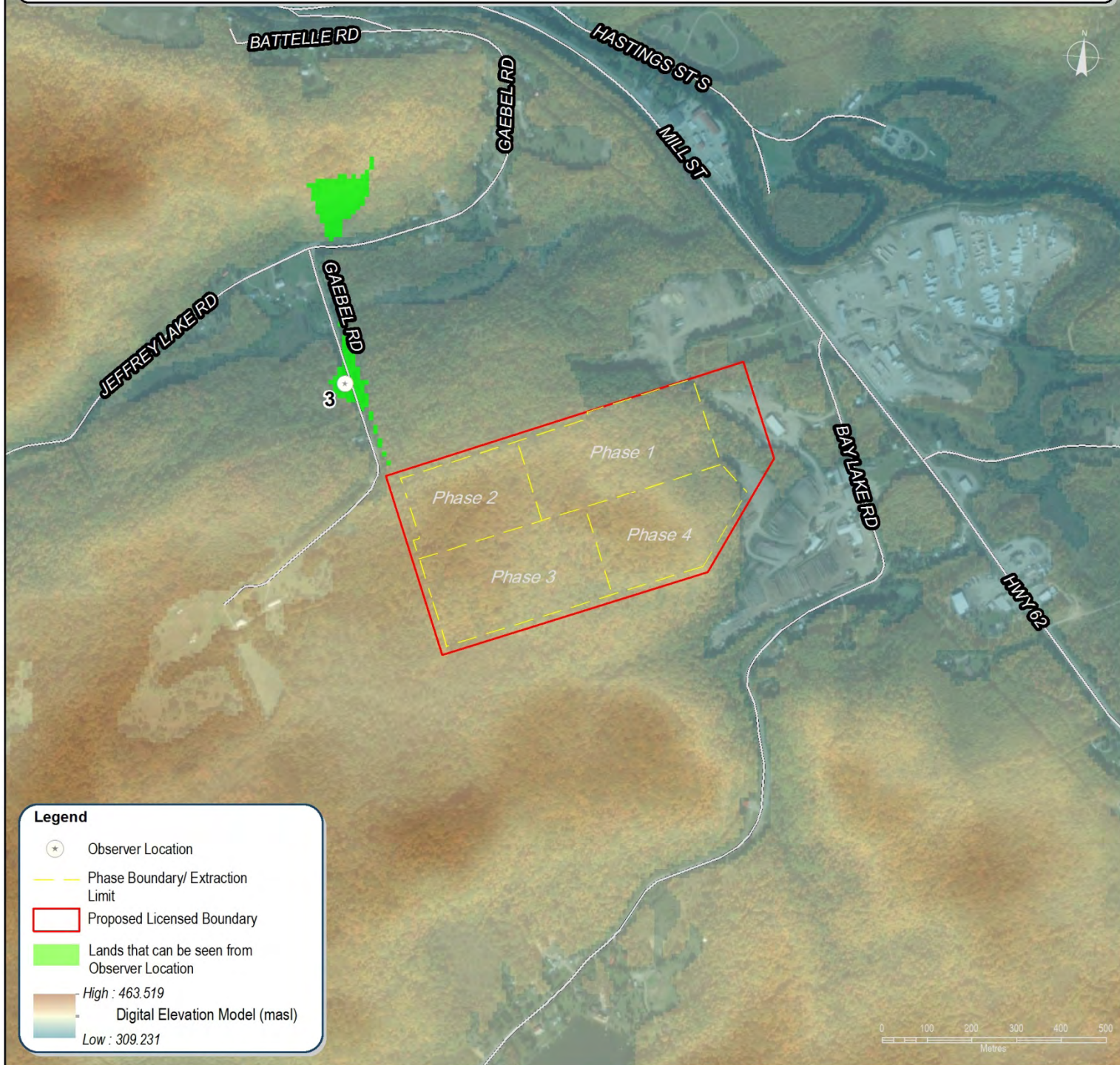
OBSERVER 3: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

County of Hastings



Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
Digital Elevation Model (masl)
Low : 309.231

- Observer location 3 is located at an elevation of 336.2 masl and is surrounded by existing forested area.
- Based on the viewshed analysis this observer location has a limited viewshed and can only see the lands immediately surrounding the observer location and another area of land north of Gaebel Road.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

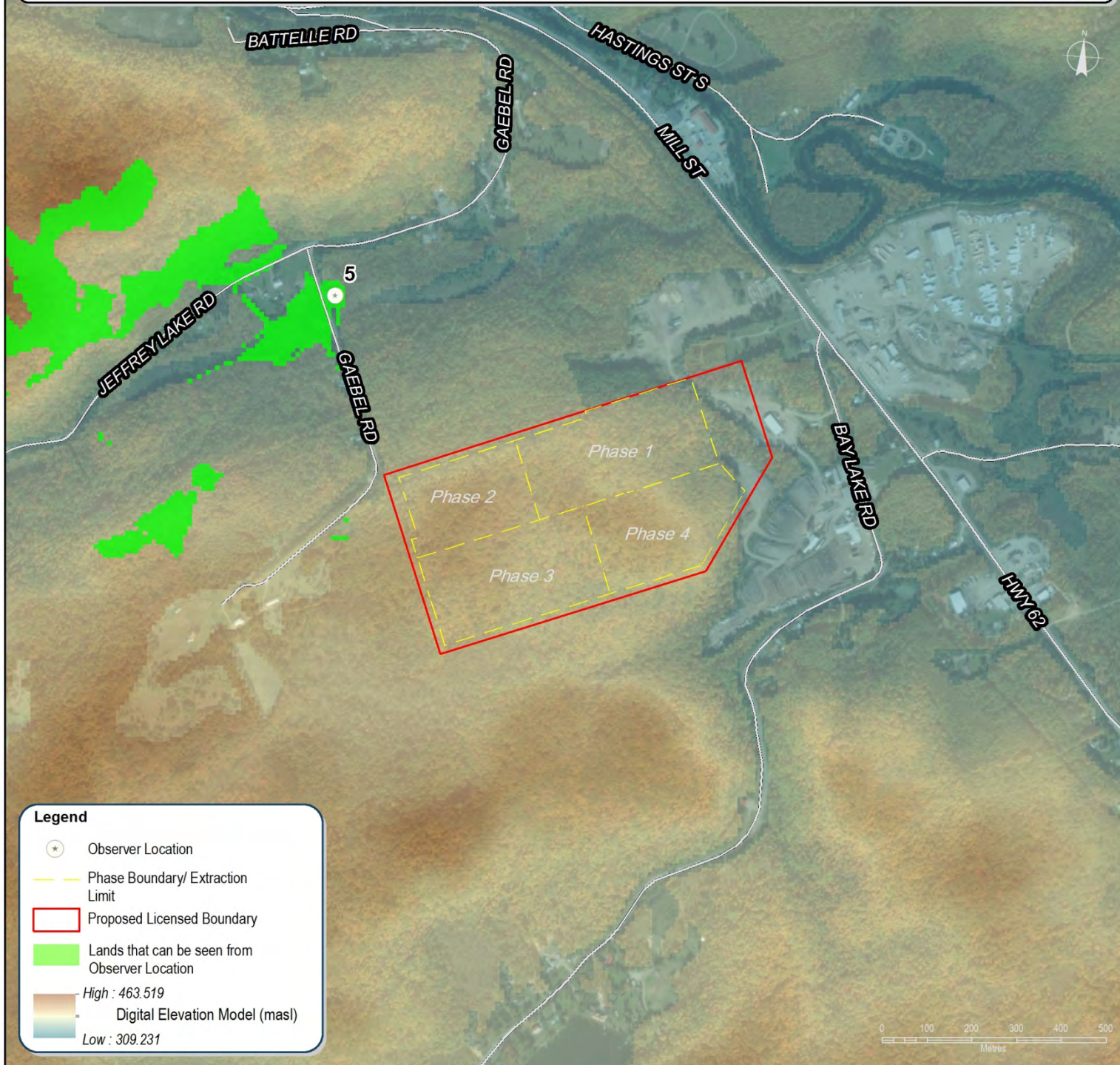
OBSERVER 5: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

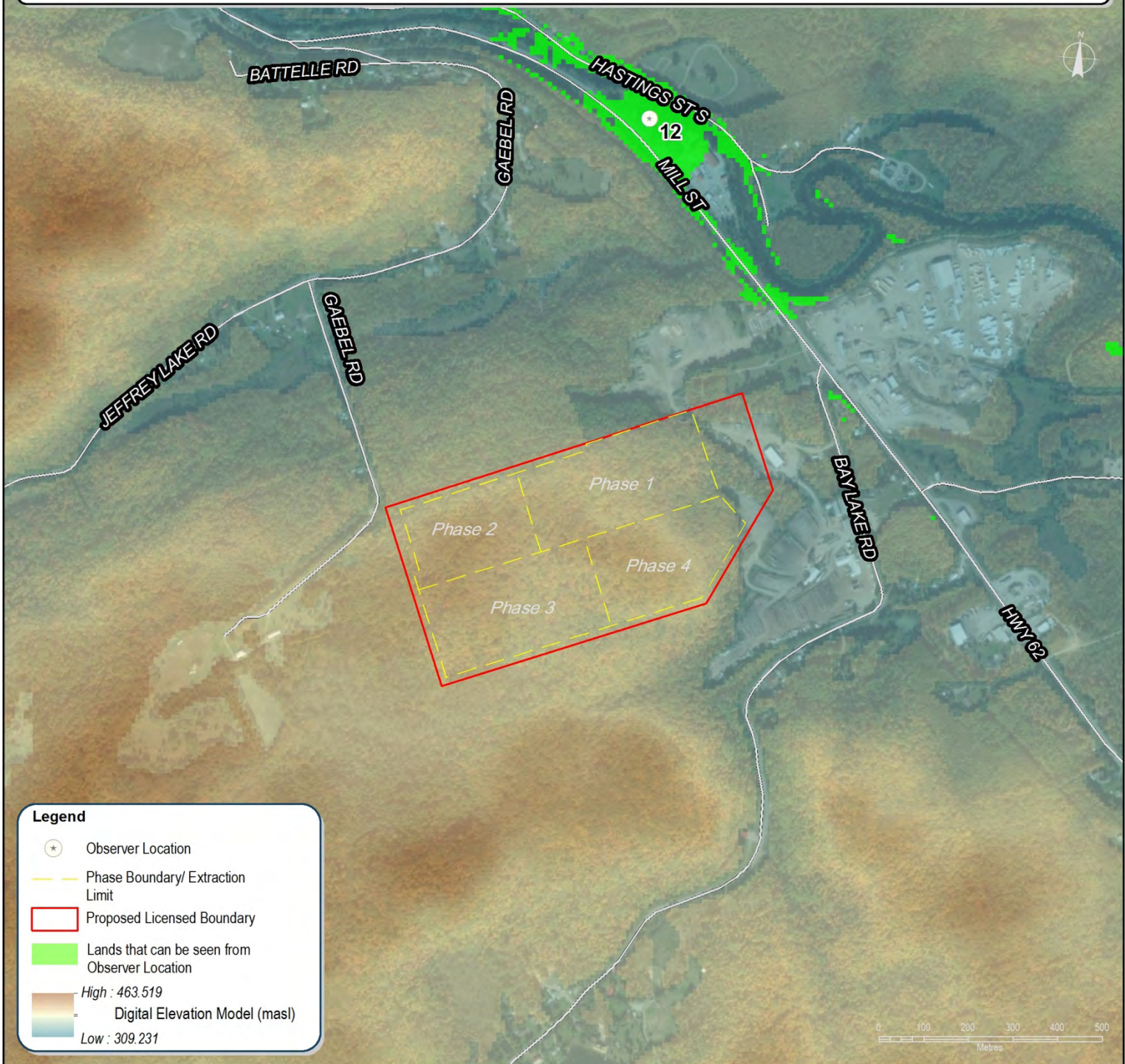
County of Hastings



- Observer location 5 is located at an elevation of 327.6 masl and is surrounded by existing forested area.
- Based on the viewshed analysis this observer location has a viewshed that extends predominately to the west of the observer location with some limited views located to the south but these views do not include the subject site.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

OBSERVER 12: EXISTING VIEWSHED

Freymond Quarry
 RR#1, 2287 Bay Lake Road
 Township of Faraday,
 County of Hastings



- Observer location 12 is located at an elevation of 320.3 masl and is located within a valley located to the east of Mill Street.
- Based on the viewshed analysis this observer location has a viewshed that extends predominately to the areas adjacent to Mill Street.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

OBSERVER 14: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

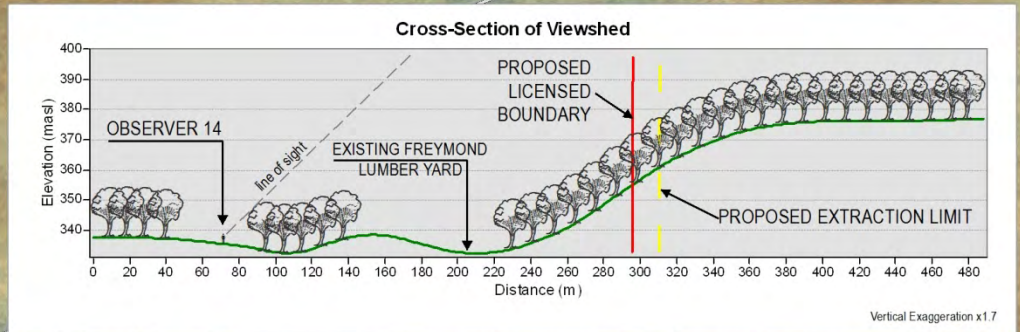
County of Hastings



Photo taken from observer location 14.

Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
- Digital Elevation Model (masl)
- Low : 309.231



Vertical Exaggeration x1.7

- Observer location 14 is located at an elevation of 335.5 masl and is located south of Bay Lake Road.
- Based on the viewshed analysis this observer location has a viewshed that extends just north and south of Bay Lake Road and extends to the east and west of the observer location.
- As can be shown on the cross-section and a photo taken from observer location 14, views towards the subject site are screened by the existing topography and trees located immediately on the north side of Bay Lake Road.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

OBSERVER 15: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

County of Hastings



Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- Digital Elevation Model (masl)
High : 463.519
Low : 309.231

- Observer location 15 is located at an elevation of 356.2 masl and is located north of Bay Lake Road.
- Based on the viewshed analysis this observer location has a limited viewshed that extends predominately east of the observer location based on existing forested areas and surrounding topography.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

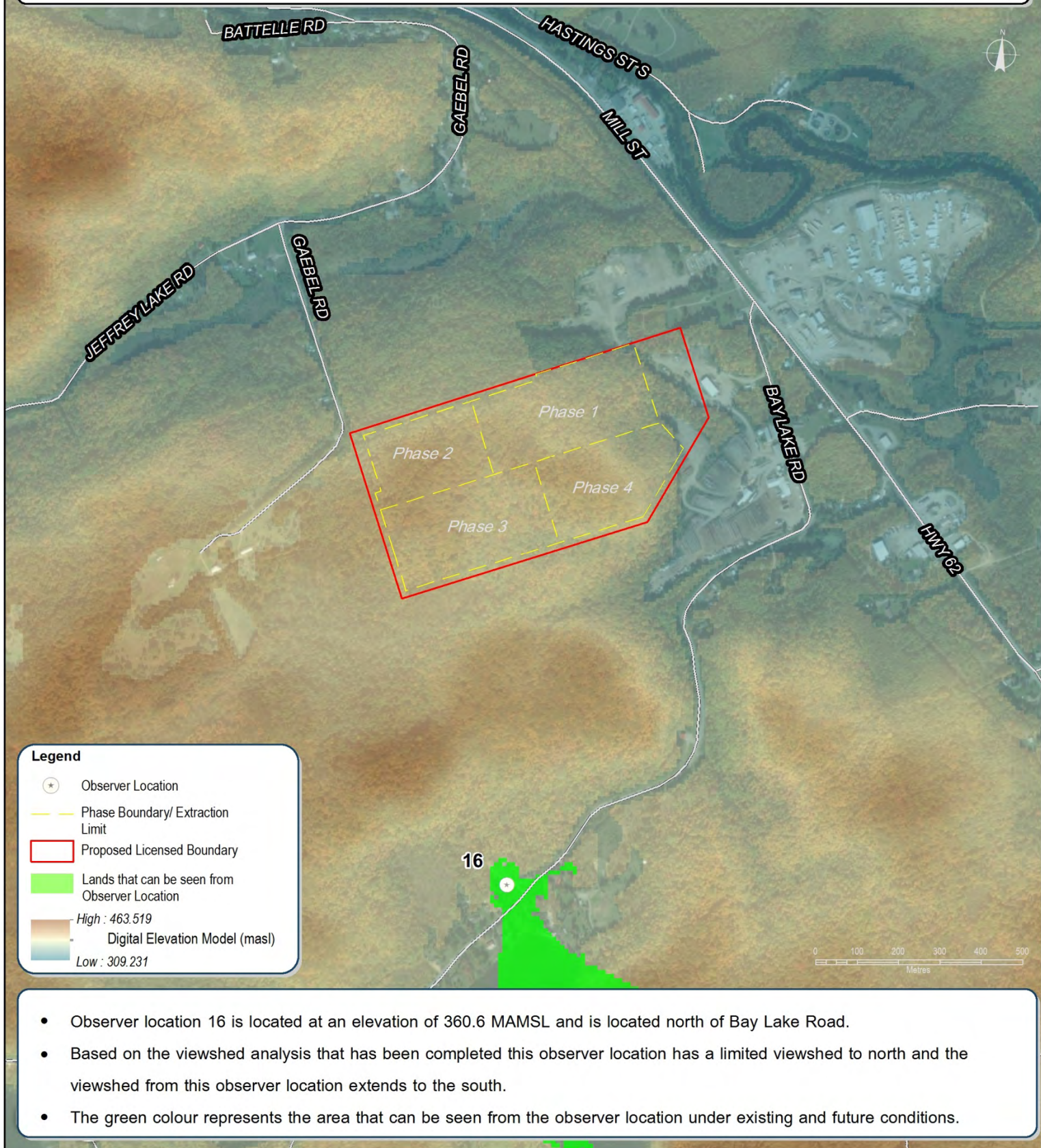
OBSERVER 16: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

Township of Faraday,

County of Hastings

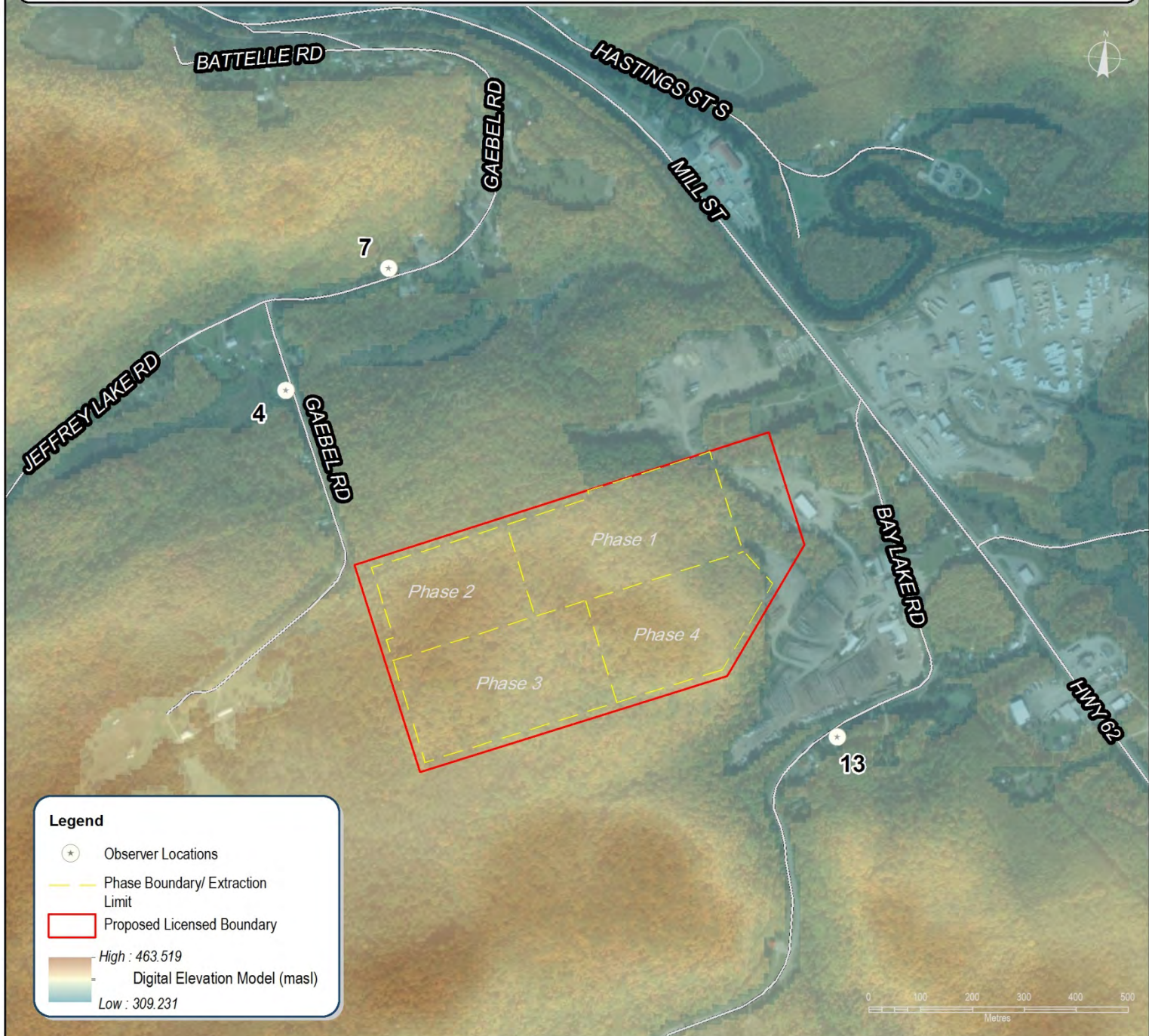


- Observer location 16 is located at an elevation of 360.6 MAMSL and is located north of Bay Lake Road.
- Based on the viewshed analysis that has been completed this observer location has a limited viewshed to north and the viewshed from this observer location extends to the south.
- The green colour represents the area that can be seen from the observer location under existing and future conditions.

Figure 5a

OBSERVER LOCATIONS THAT CAN SEE THE TOP OF TREELINE ON A PORTION OF SUBJECT SITE UNDER EXISTING CONDITIONS, BUT WILL NOT BE ABLE TO SEE ANY ASPECT OF THE PROPOSED QUARRY

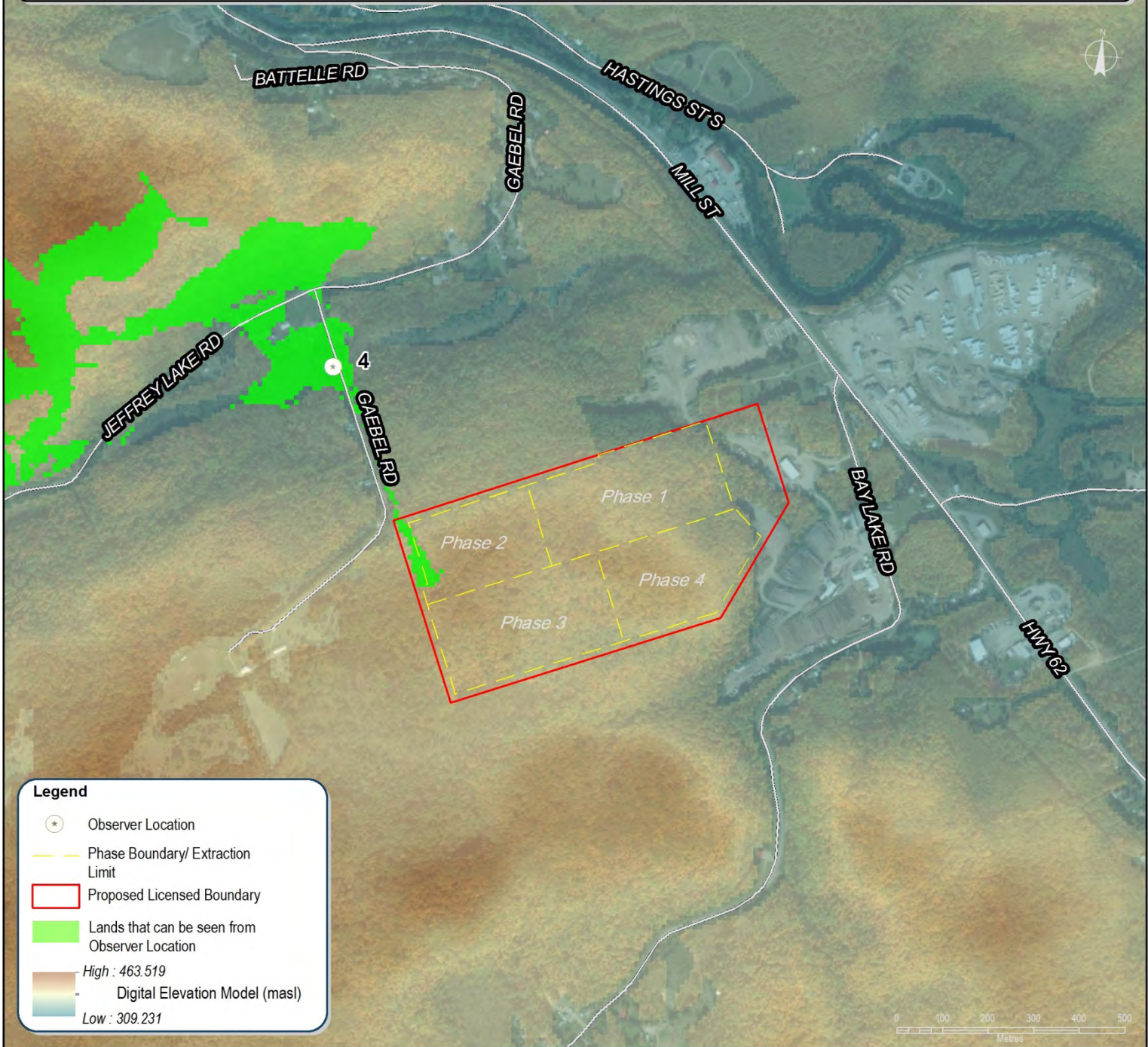
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Freymond Quarry
RR#1, 2287 Bay Lake Road
Township of Faraday,
County of Hastings



- Of the 16 observer locations, 3 observer locations can see the top of the tree line on a portion of the subject site, however will not be able to see any of the equipment working at existing grade or any of the operation located on the quarry floor due to the retention of existing trees outside of the proposed extraction area and existing topography;
- These 3 observer locations are shown on this figure.
- Figures 5b – 5g illustrate the viewshed for each of the observer locations.

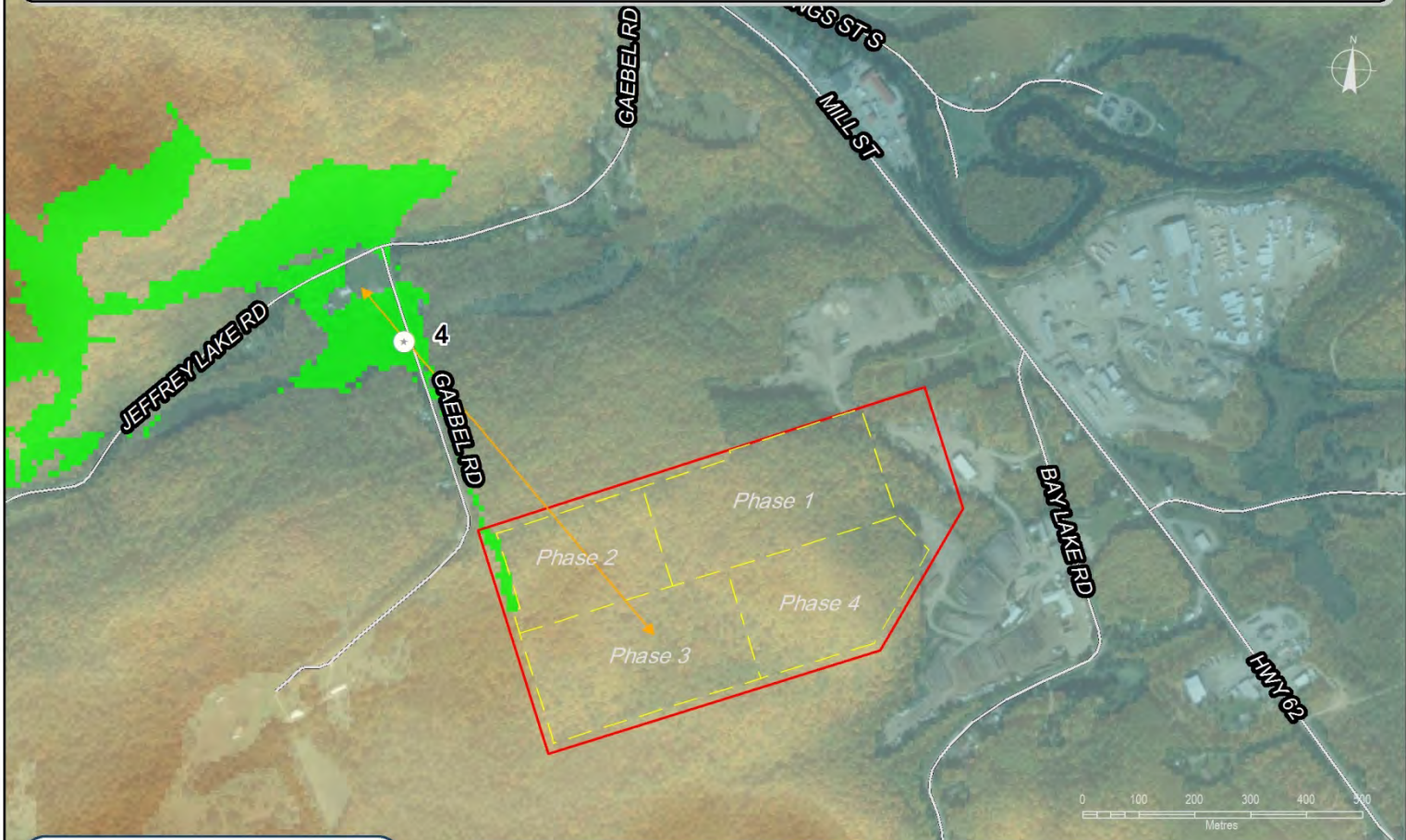
OBSERVER 4: EXISTING VIEWSHED

Freymond Quarry
 RR#1, 2287 Bay Lake Road
 Township of Faraday,
 County of Hastings



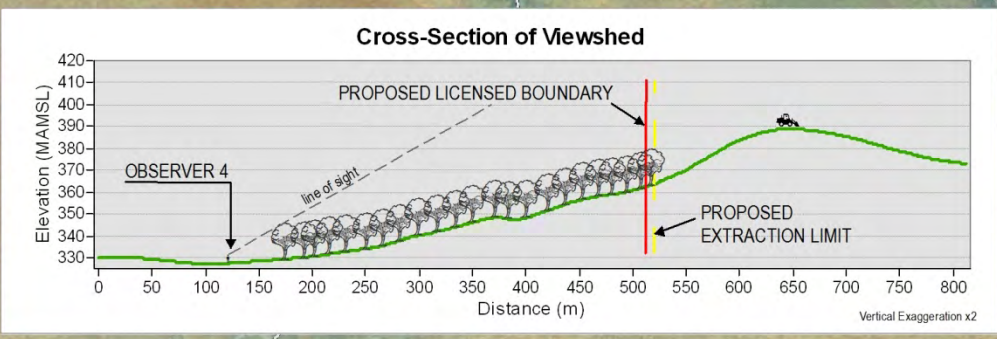
- Observer location 4 is located at an elevation of 327.2 masl.
- Based on the viewshed analysis, this observer has a viewshed predominately to the north and west of the observer location.
- The observer location can also see a small portion of Phase 2 under existing conditions.
- The green colour represents the area that can be seen from the observer location based on existing conditions

OBSERVER 4: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE



Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
- Digital Elevation Model (masl)
- Low : 309.231



- As shown on Figure 5b this observer location can see a small portion of the proposed extraction area located within Phase 2.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis confirm this observer could only see the top of the tree line on-site and although the trees will be removed within the proposed extraction area, the retention of existing trees outside of the extraction area and the topography of the area will prevent this observer from seeing any aspect of the proposed operation when it is located at grade or on the proposed quarry floor. See cross-section for additional illustration.

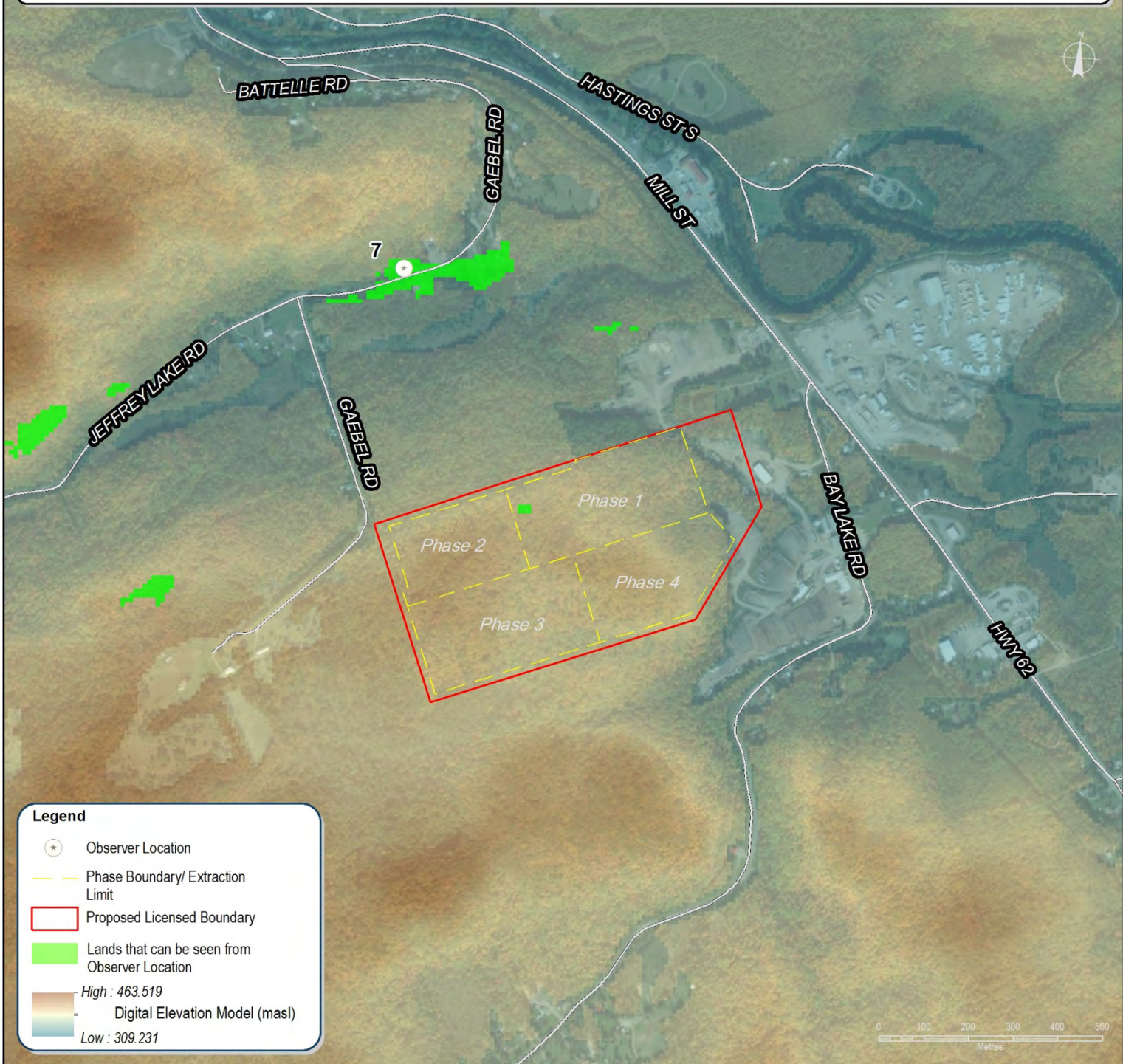
OBSERVER 7: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

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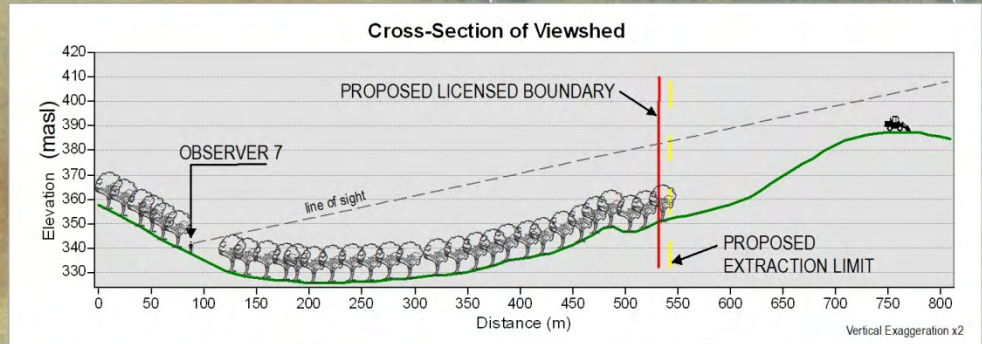
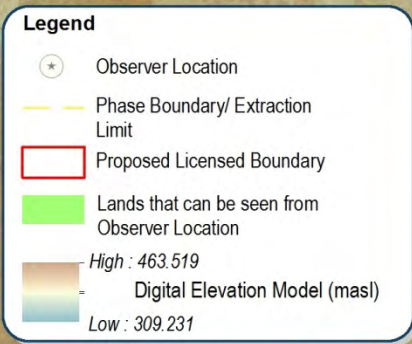
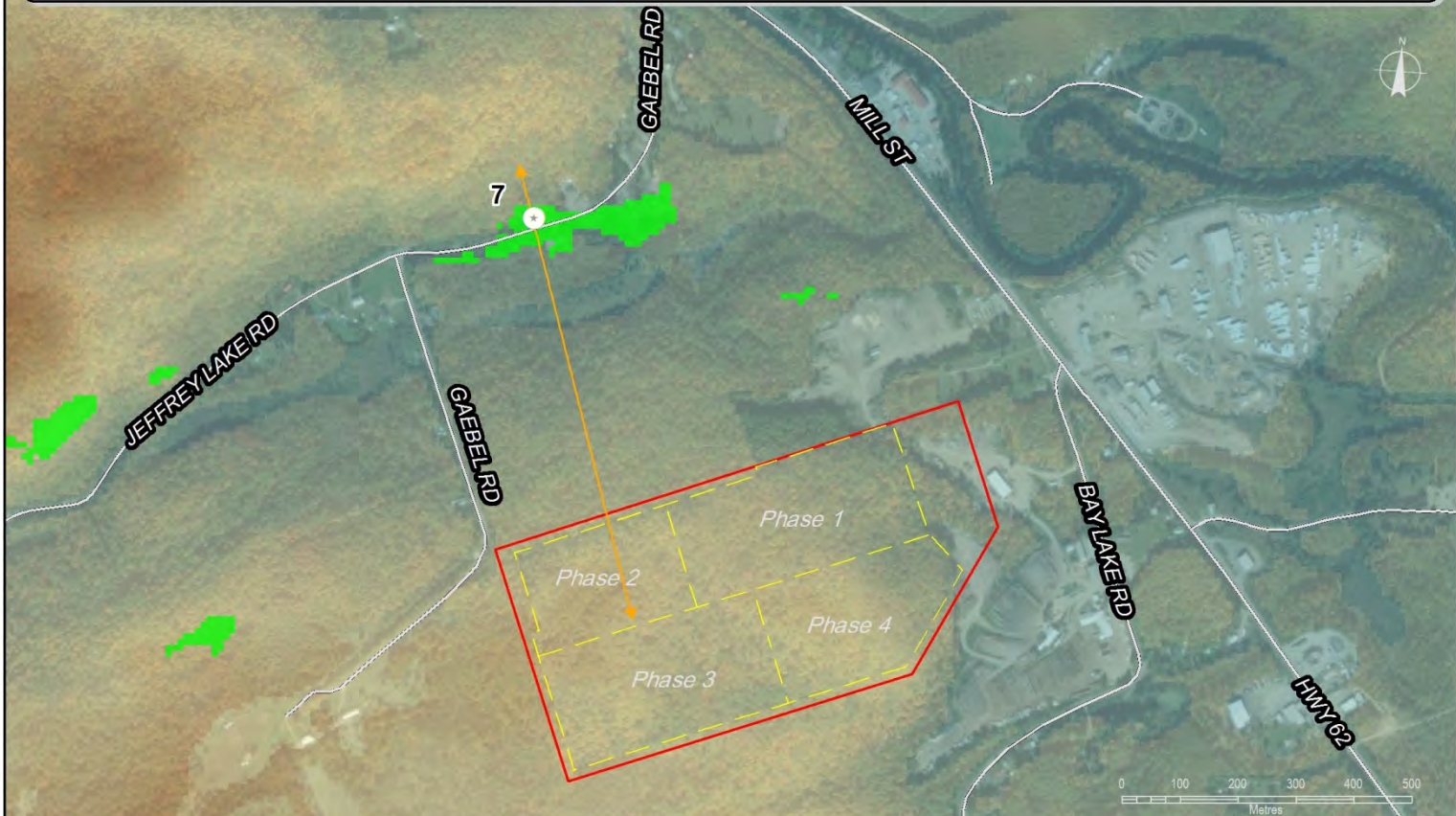
Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
Digital Elevation Model (masl)
Low : 309.231



- Observer location 7 is located at an elevation of 334.8 masl.
- Based on the viewshed analysis, this observer has a limited viewshed predominately to the south of the observer location. The observer location can also see a small portion of Phase 1 under existing conditions.
- The green colour represents the area that can be seen from the observer location based on existing conditions.

OBSERVER 7: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE



- As shown on Figure 5d this observer location can see a small portion of the proposed extraction area located within Phase 1.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis confirm this observer could only see the top of the tree line on-site and although the trees will be removed within the proposed extraction area, the retention of existing trees outside of the extraction area and the topography of the area will prevent this observer from seeing any aspect of the proposed operation when it is located at grade or on the proposed quarry floor. See cross-section for additional illustration.

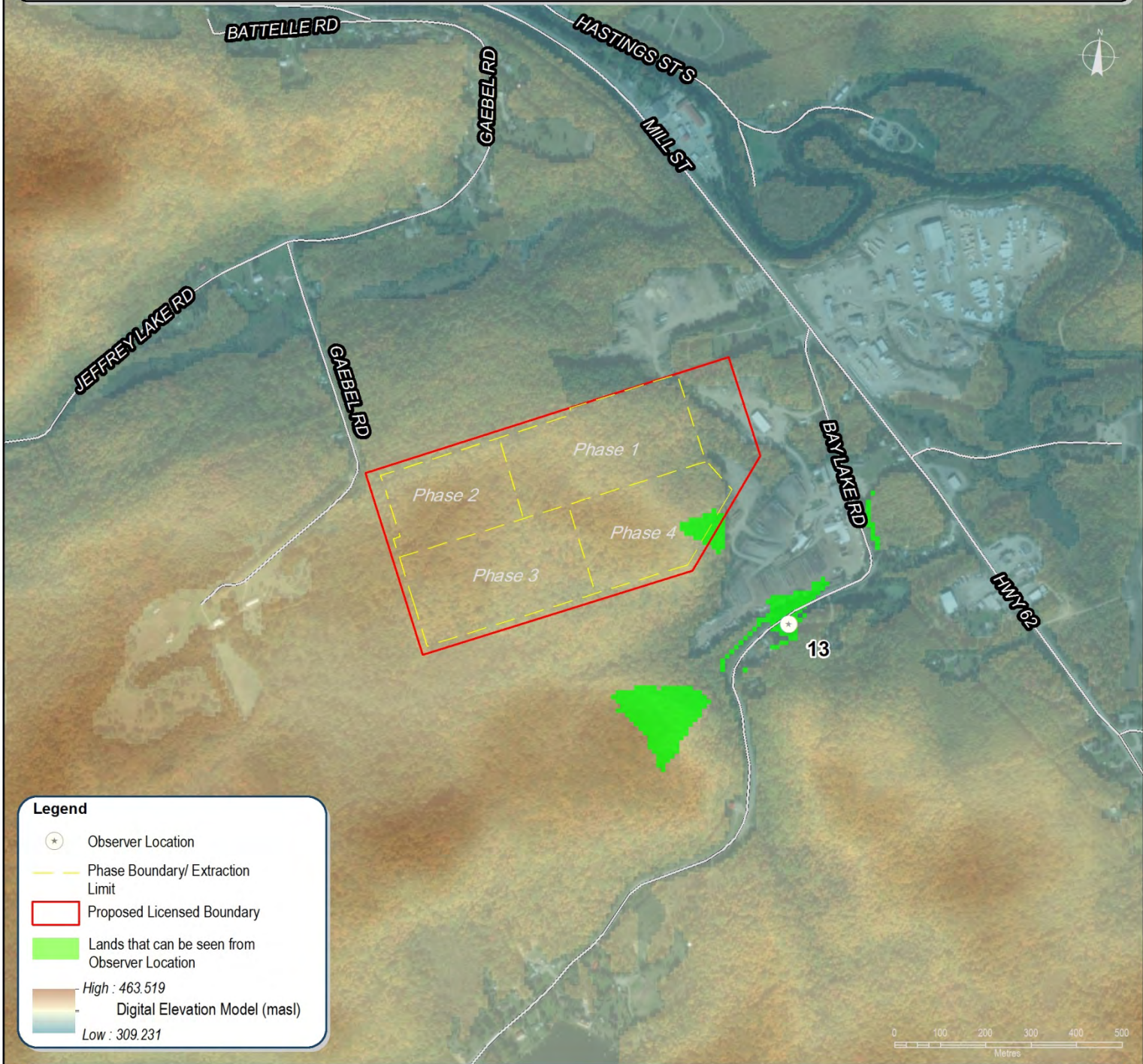
OBSERVER 13: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

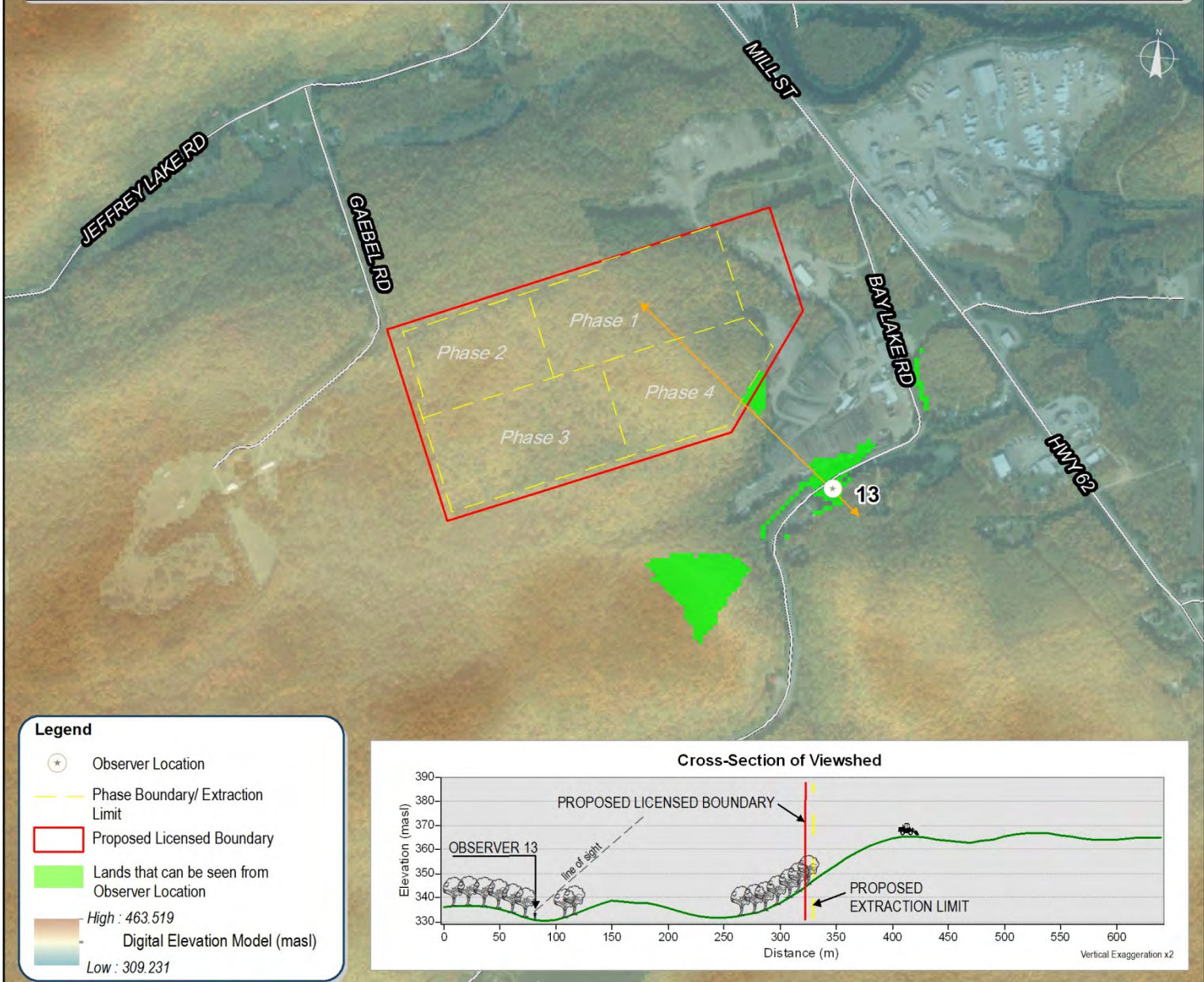
Township of Faraday,

County of Hastings



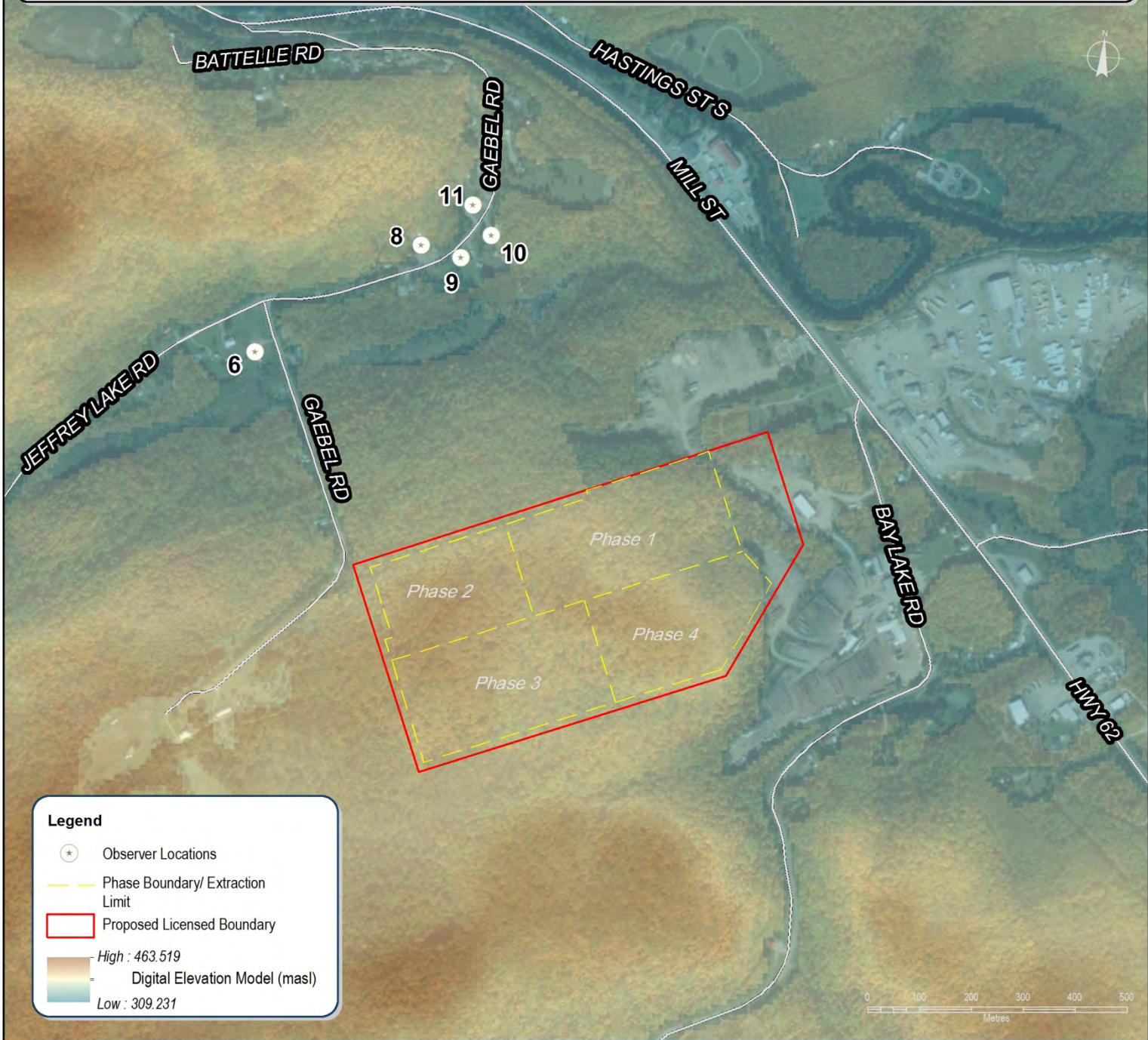
- Observer location 13 is located at an elevation of 331.3 masl.
- Based on the viewshed analysis, this observer has a limited viewshed to the north that also extends east and west of the observer location.
- The observer location can also see a small portion of Phase 4 under existing conditions.
- The green colour represents the area that can be seen from the observer location based on existing conditions.

OBSERVER 13: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE



- As shown on Figure 5f this observer location can see a small portion of the proposed extraction area located within Phase 4.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis confirm this observer could only see the top of the tree line on-site and although the trees will be removed within the proposed extraction area, the retention of existing trees outside of the extraction area and the topography of the area will prevent this observer from seeing any aspect of the proposed operation when it is located at grade or on the proposed quarry floor. See cross-section for additional illustration.

OBSERVER LOCATIONS THAT CAN SEE EQUIPMENT WORKING AT GRADE ON A PORTION OF THE SUBJECT SITE BUT WILL NOT BE ABLE TO SEE ANY ASPECT OF THE PROPOSED QUARRY LOCATED ON THE QUARRY FLOOR



Legend

- ⊛ Observer Locations
- - - Phase Boundary/ Extraction Limit
- ▭ Proposed Licensed Boundary
- High : 463.519
- Digital Elevation Model (masl)
- Low : 309.231

- Of the 16 observer locations, 5 observer locations will be able to see equipment working at grade for site preparation and drilling, however will not be able to see any of the proposed operation located on the quarry floor due to the retention of existing trees outside of the proposed extraction area and existing topography.
- These 5 observer locations are shown on this figure.
- Figures 6b – 6q illustrate the viewshed for each of the observer locations.

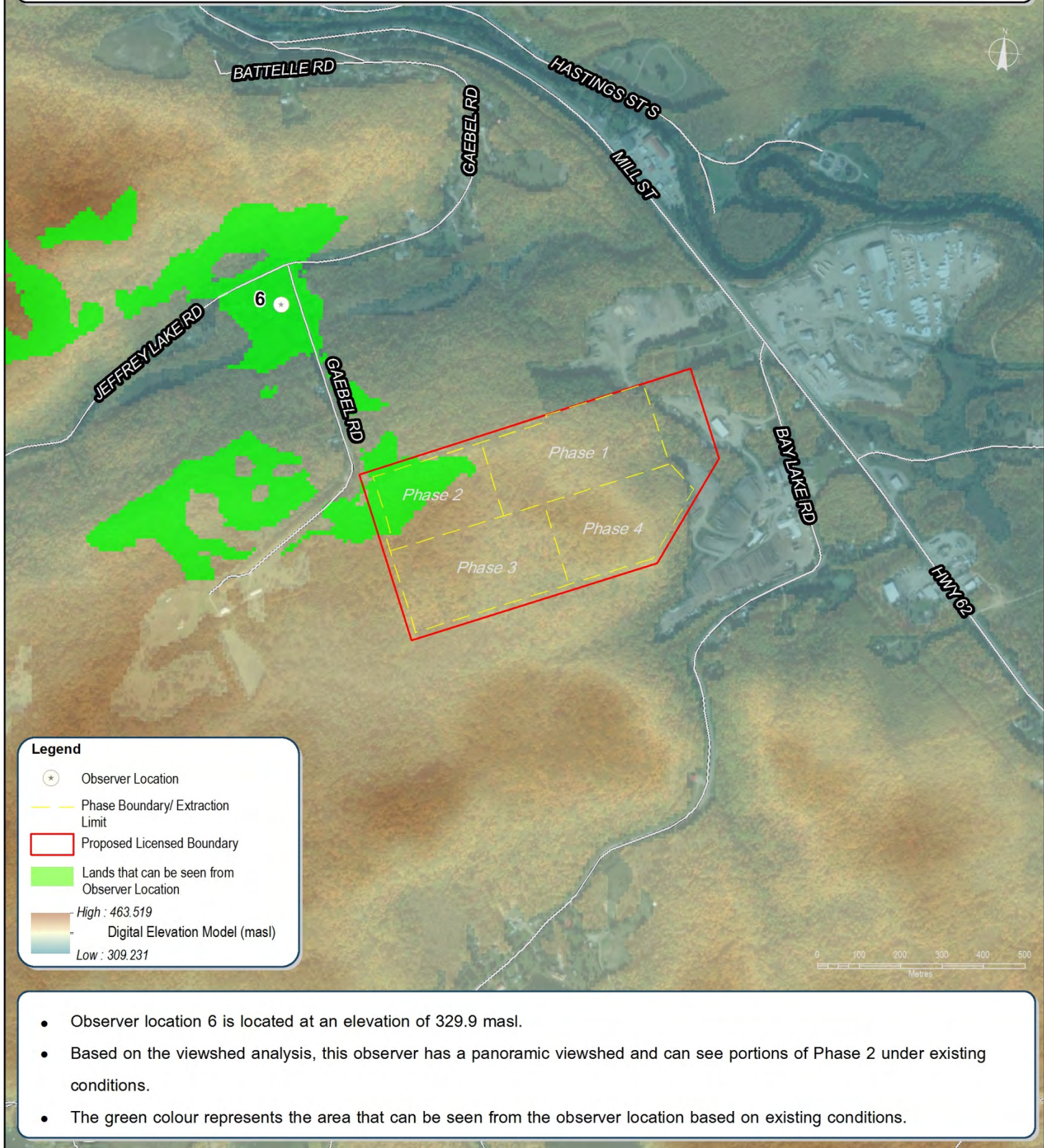
OBSERVER 6: EXISTING VIEWSHED

Freymond Quarry

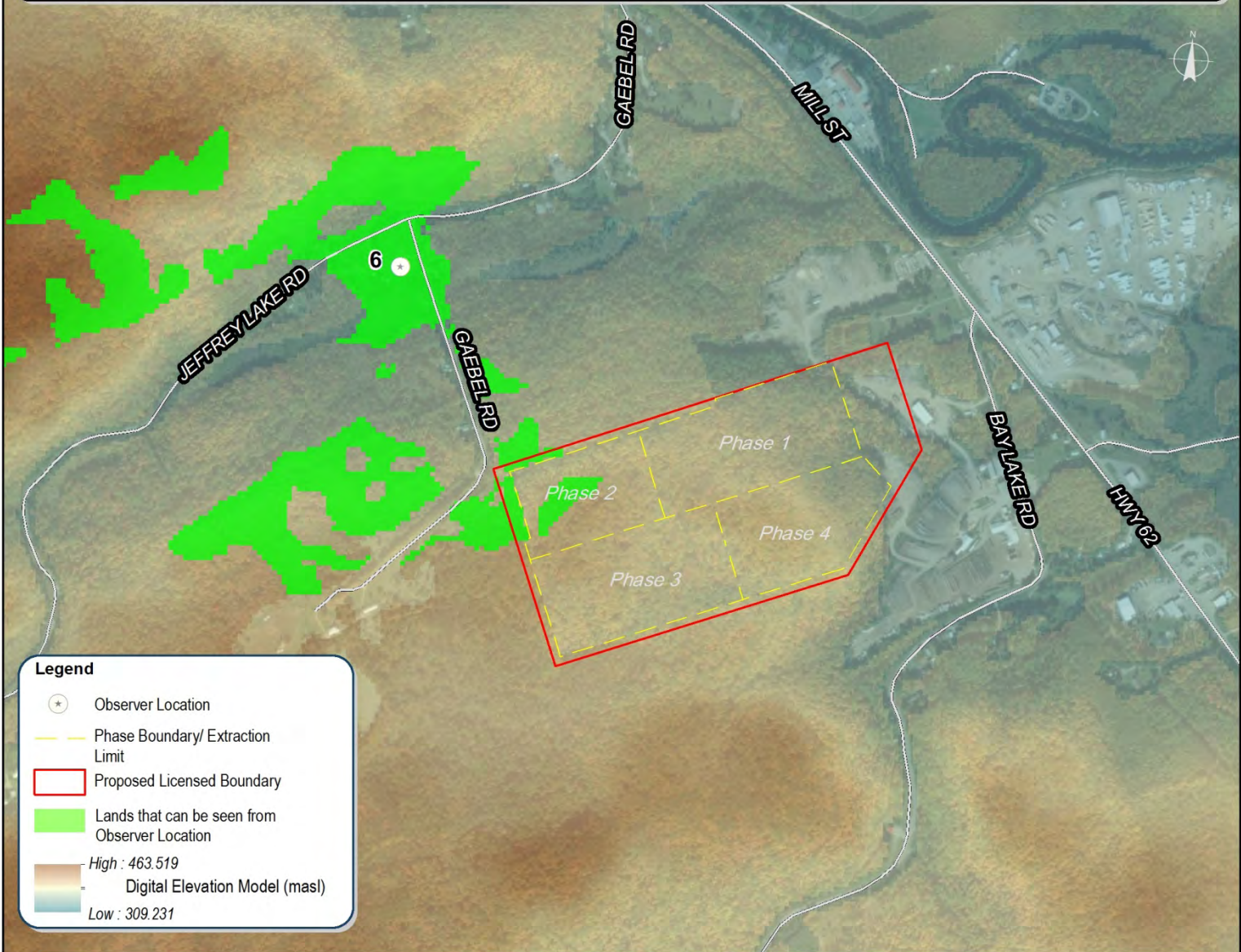
RR#1, 2287 Bay Lake Road

Township of Faraday,

County of Hastings

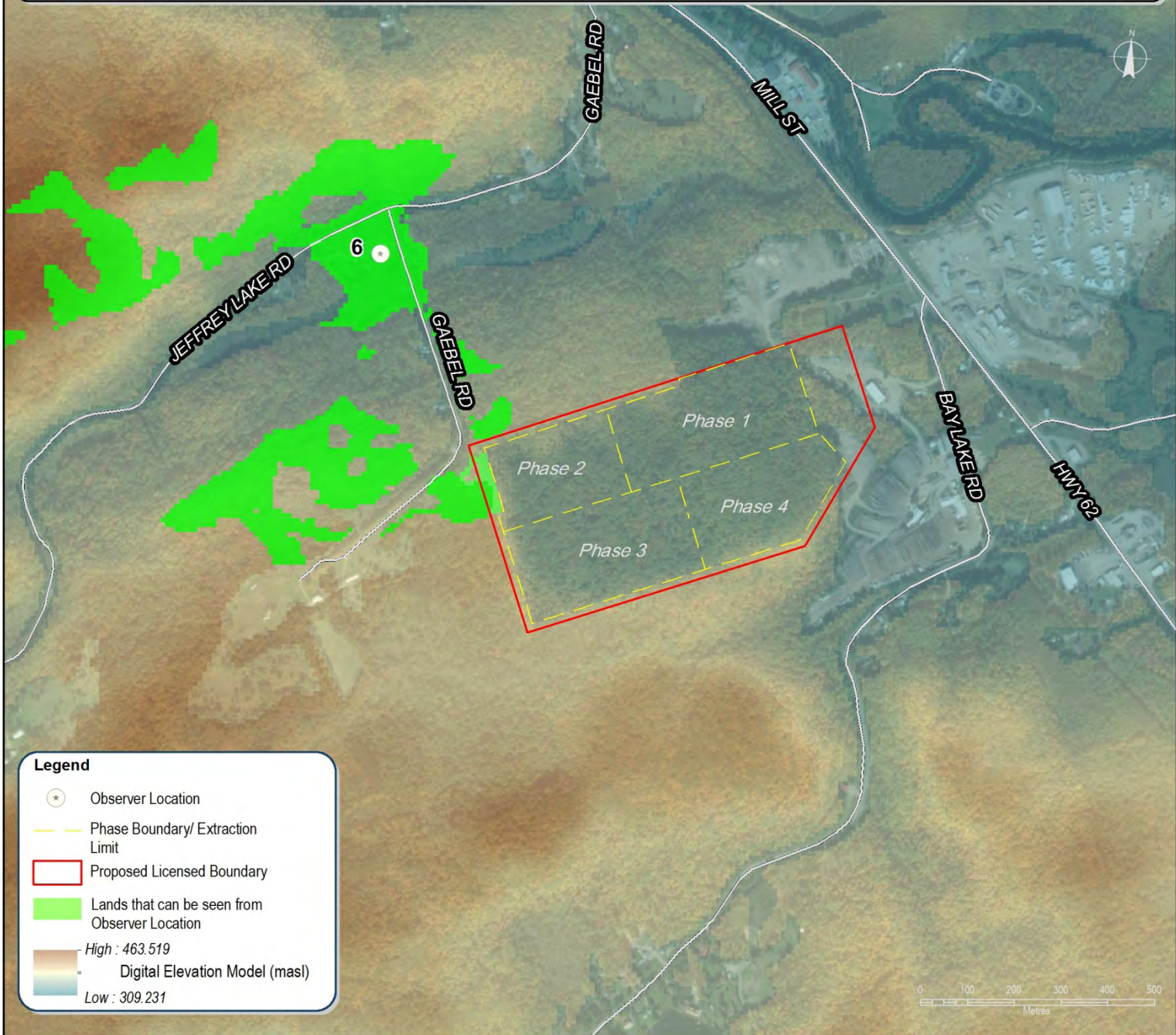


OBSERVER 6: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE



- As shown on Figure 6b this observer location can see portions of the proposed extraction area located within Phase 2.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis identify that equipment during site preparation and drilling activities in a small area of Phase 2 will be visible from the observer location.
- Phase 2 is not expected to begin for a minimum of 14 years from the commencement of extraction.
- These views will be 550m from the observer location and these activities are only permitted to occur from 7:00 am to 5:30 pm Monday to Friday.
- Due to the distance, these views will be discrete and of a short term nature and will not result in unacceptable visual impacts.

OBSERVER 6: VIEWSHED WHILE OPERATIONS ARE LOCATED ON THE QUARRY FLOOR



Legend

- ⊛ Observer Location
- Phase Boundary/ Extraction Limit
- ▭ Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
- Low : 309.231

Digital Elevation Model (masl)

- The results as shown on Figure 6c were further analyzed to determine if there will be any views of the operations including the processing plant, stockpiles of aggregates, the transfer of aggregate from the quarry face to the processing area by trucks or loaders and the loading of aggregate into highways trucks for shipping to market.
- As part of this analysis all of these activities were located on the quarry floor and the viewshed analysis confirms that these activities will not be visible from the observer location due the elevation of the proposed quarry floor, the retention of existing trees outside of the extraction area and the topography of the area.

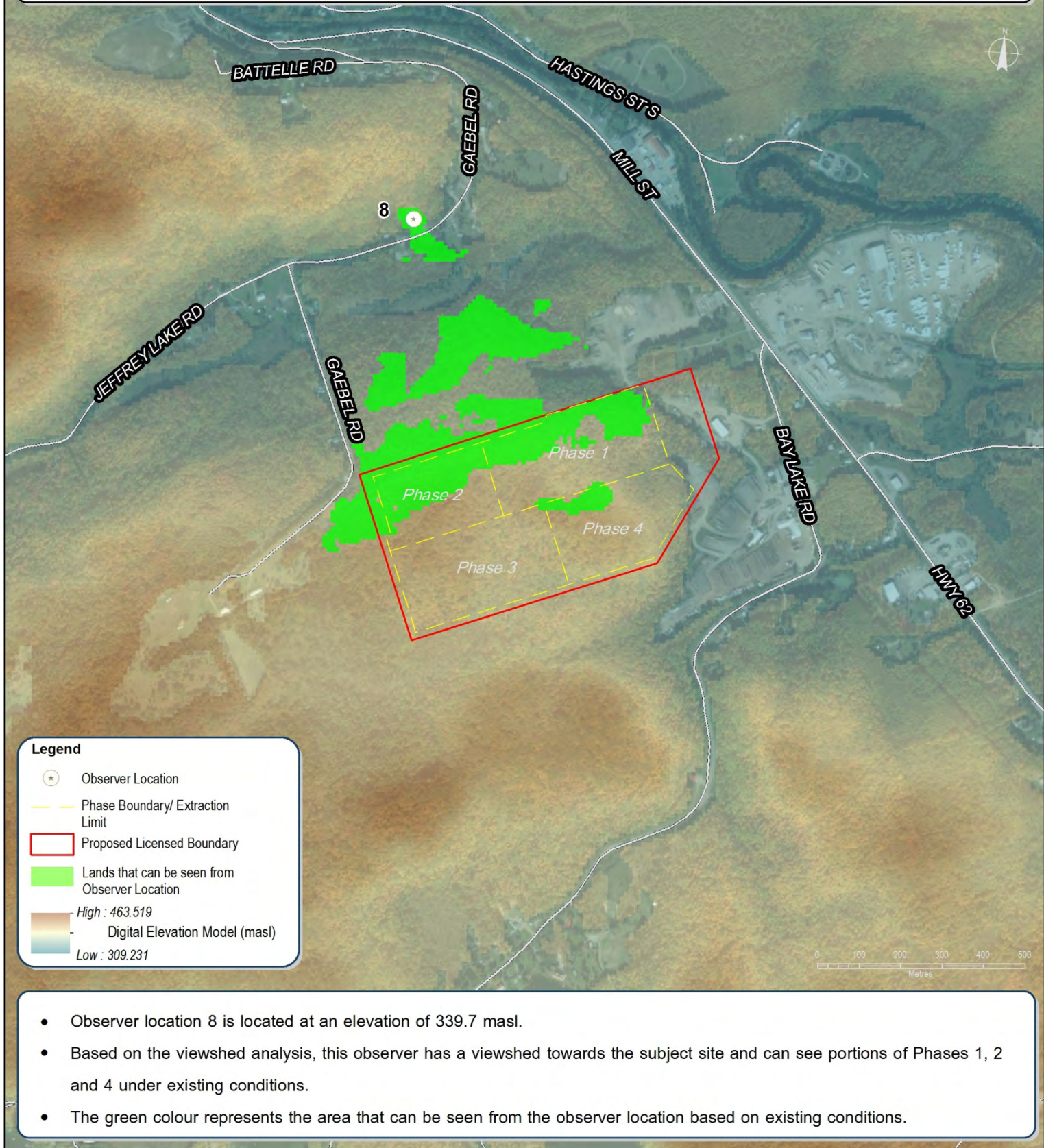
OBSERVER 8: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

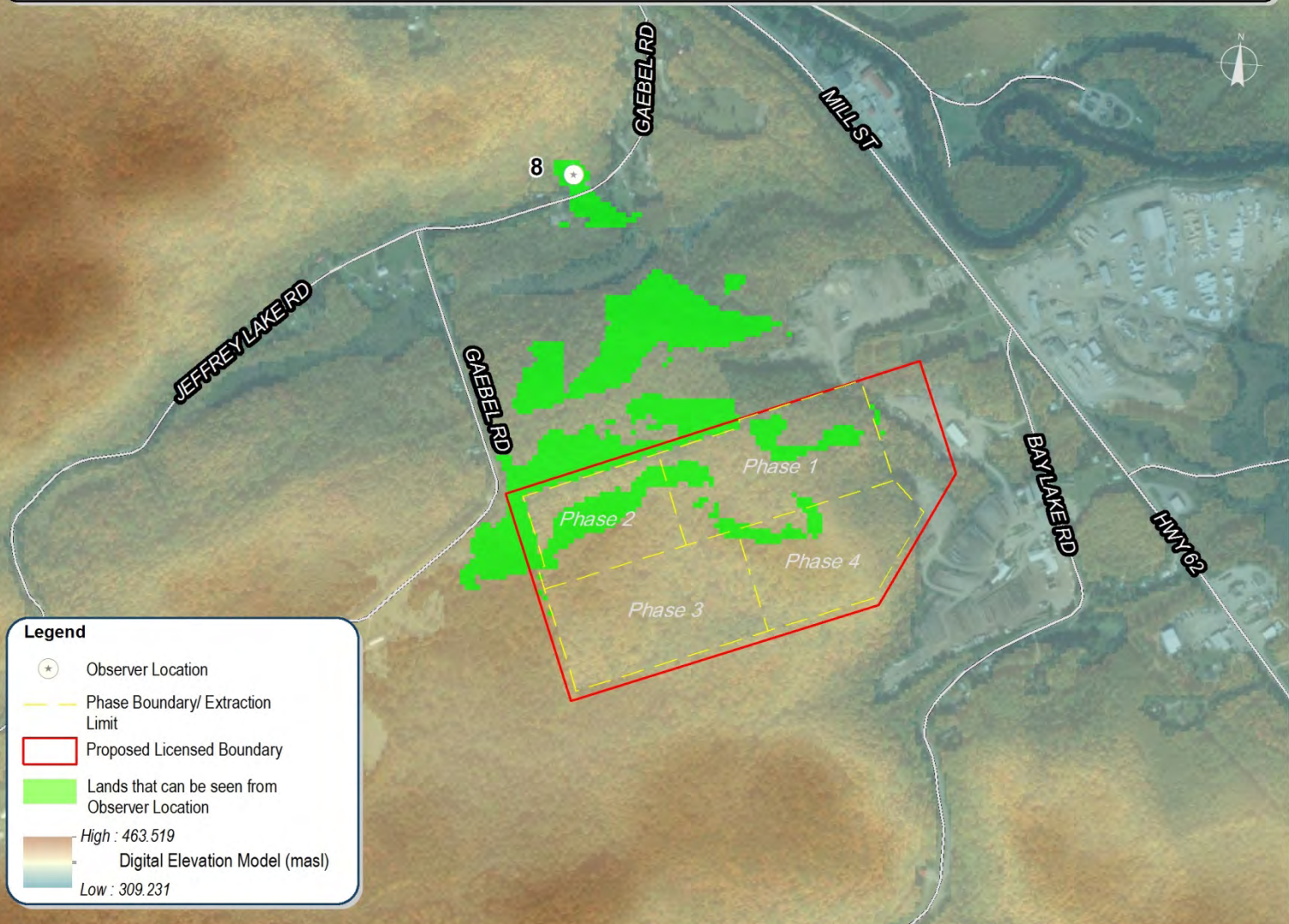
Township of Faraday,

County of Hastings



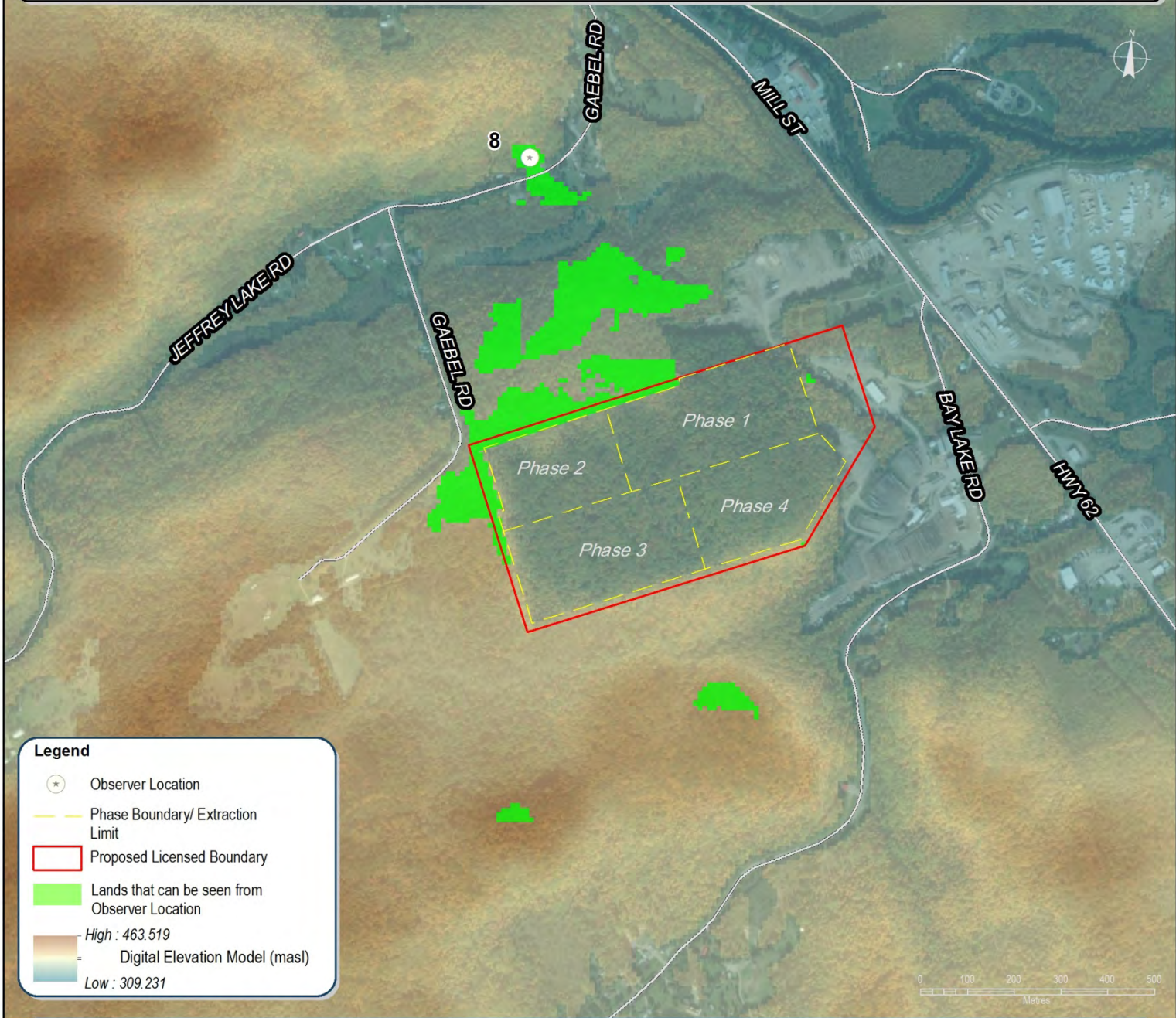
- Observer location 8 is located at an elevation of 339.7 masl.
- Based on the viewshed analysis, this observer has a viewshed towards the subject site and can see portions of Phases 1, 2 and 4 under existing conditions.
- The green colour represents the area that can be seen from the observer location based on existing conditions.

OBSERVER 8: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE



- As shown on Figure 6e this observer location can see portions of the proposed extraction area located within Phases 1, 2 and 4.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis identify that equipment during site preparation and drilling activities in portions of Phases 1, 2 and 4 will be visible from the observer location.
- These views will be 600m from the observer location and these activities are only permitted to occur from 7:00 am to 5:30 pm Monday to Friday.
- Due to the extent of areas that can be viewed from this observer location an additional photo viewshed analysis was completed and is shown on Figure 6h to understand what views this observer location will have of the proposed quarry when equipment is working at grade. See Figure 6h.

OBSERVER 8: VIEWSHED WHILE OPERATIONS ARE LOCATED ON THE QUARRY FLOOR



Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- Digital Elevation Model (masl)
 High : 463.519
 Low : 309.231

- In addition to the photo viewshed analysis shown on Figure 6h, the results of Figure 6f were further analyzed to determine if there will be any views of the operations including the processing plant, stockpiles of aggregates, the transfer of aggregate from the quarry face to the processing area by trucks or loaders and the loading of aggregate into highways trucks for shipping to market.
- As part of this analysis all of these activities were located on the quarry floor and the viewshed analysis confirms that these activities will not be visible from the observer location due the elevation of the proposed quarry floor, the retention of existing trees outside of the extraction area and the topography of the area.

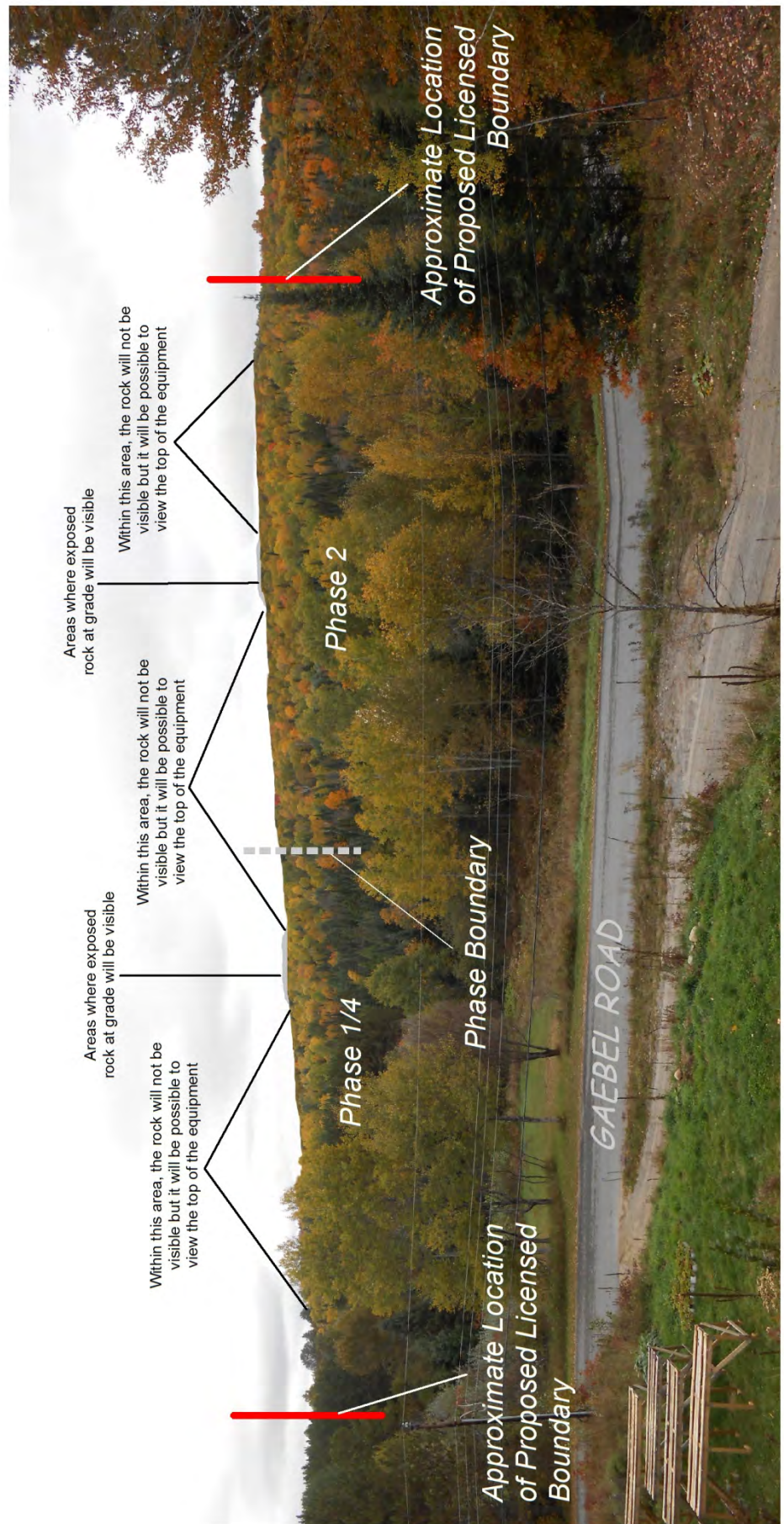
OBSERVER 8: PHOTO LOG OF FIGURE 6e

Photo 1: Existing Photo Viewshed of Proposed Extraction Area



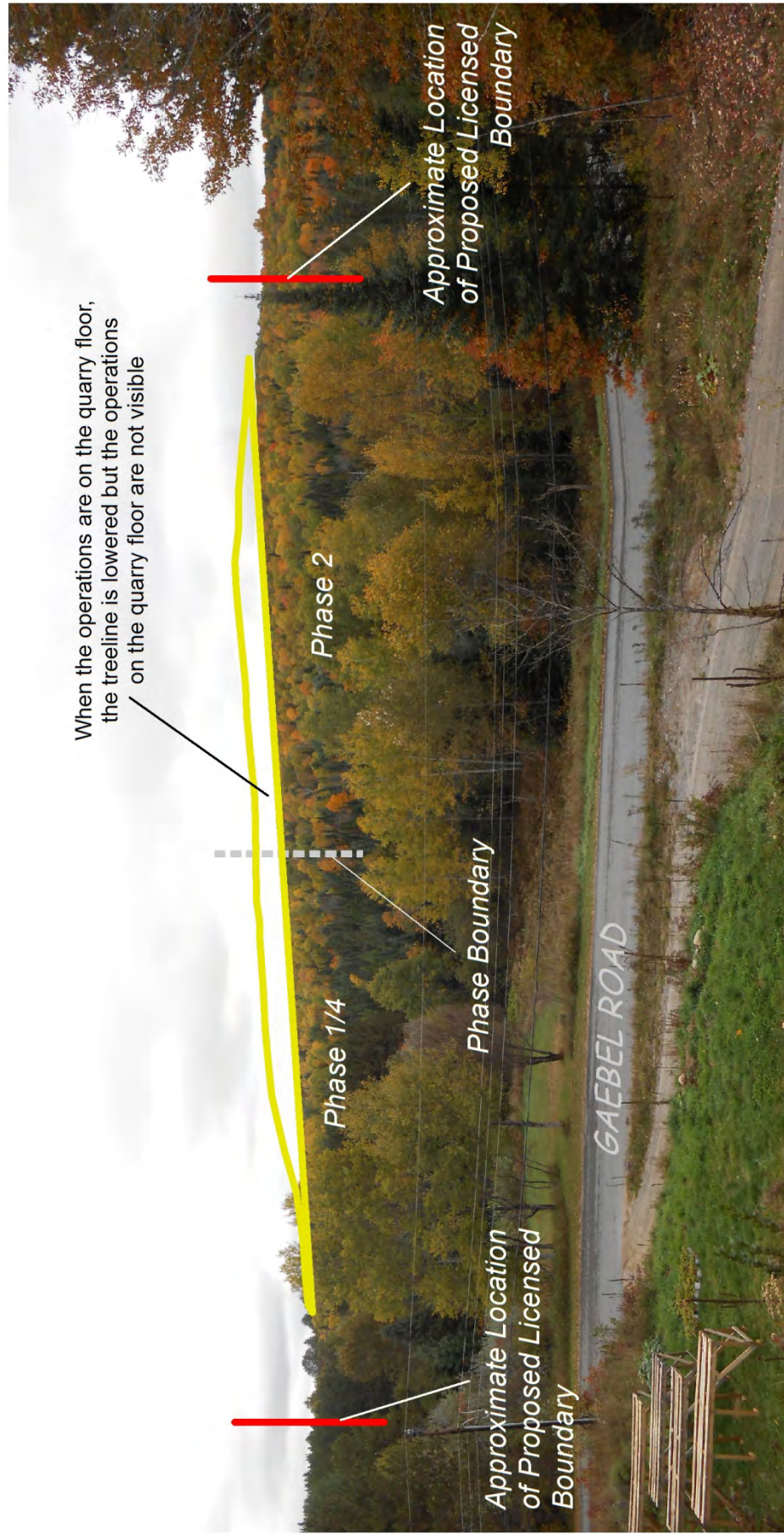
OBSERVER 8: PHOTO LOG OF FIGURE 6f

Photo 2: Photo Viewshed While Equipment is Working at Grade



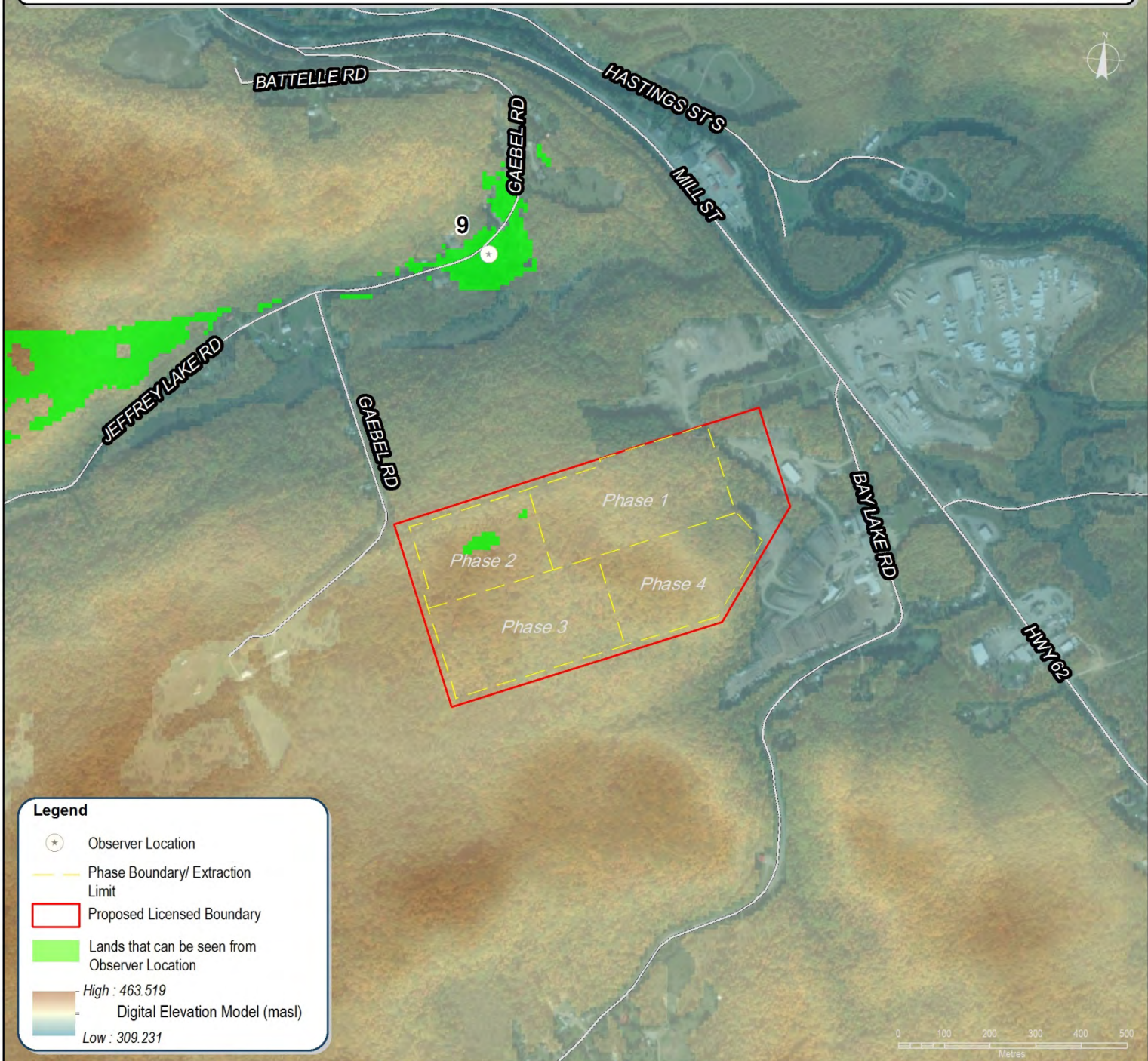
OBSERVER 8: PHOTO LOG OF FIGURE 6g

Photo 3: Photo Viewshed of Proposed Extraction Area During Operations on the Quarry Floor



OBSERVER 9: EXISTING VIEWSHED

Freymond Quarry
 RR#1, 2287 Bay Lake Road
 Township of Faraday,
 County of Hastings

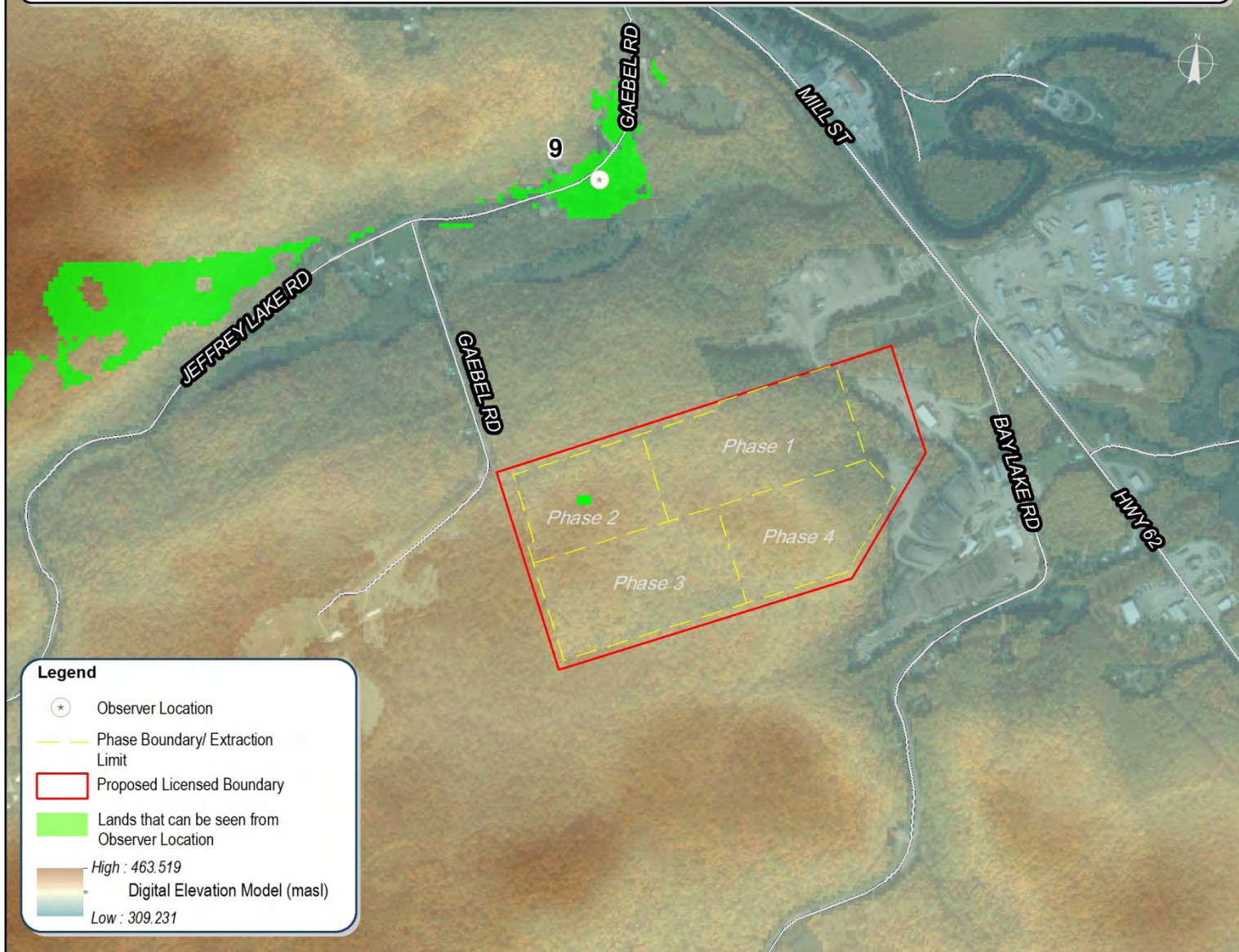


Legend

- ⊙ Observer Location
- - - Phase Boundary/ Extraction Limit
- ▭ Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
- Low : 309.231
- Digital Elevation Model (masl)

- Observer location 9 is located at an elevation of 331.6 masl.
- Based on the viewshed analysis, this observer predominately has a viewshed surrounding the observer location and views towards the west.
- This observer location can also see a small area of Phase 2 under existing conditions.
- The green colour represents the area that can be seen from the observer location based on existing conditions.

OBSERVER 9: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE

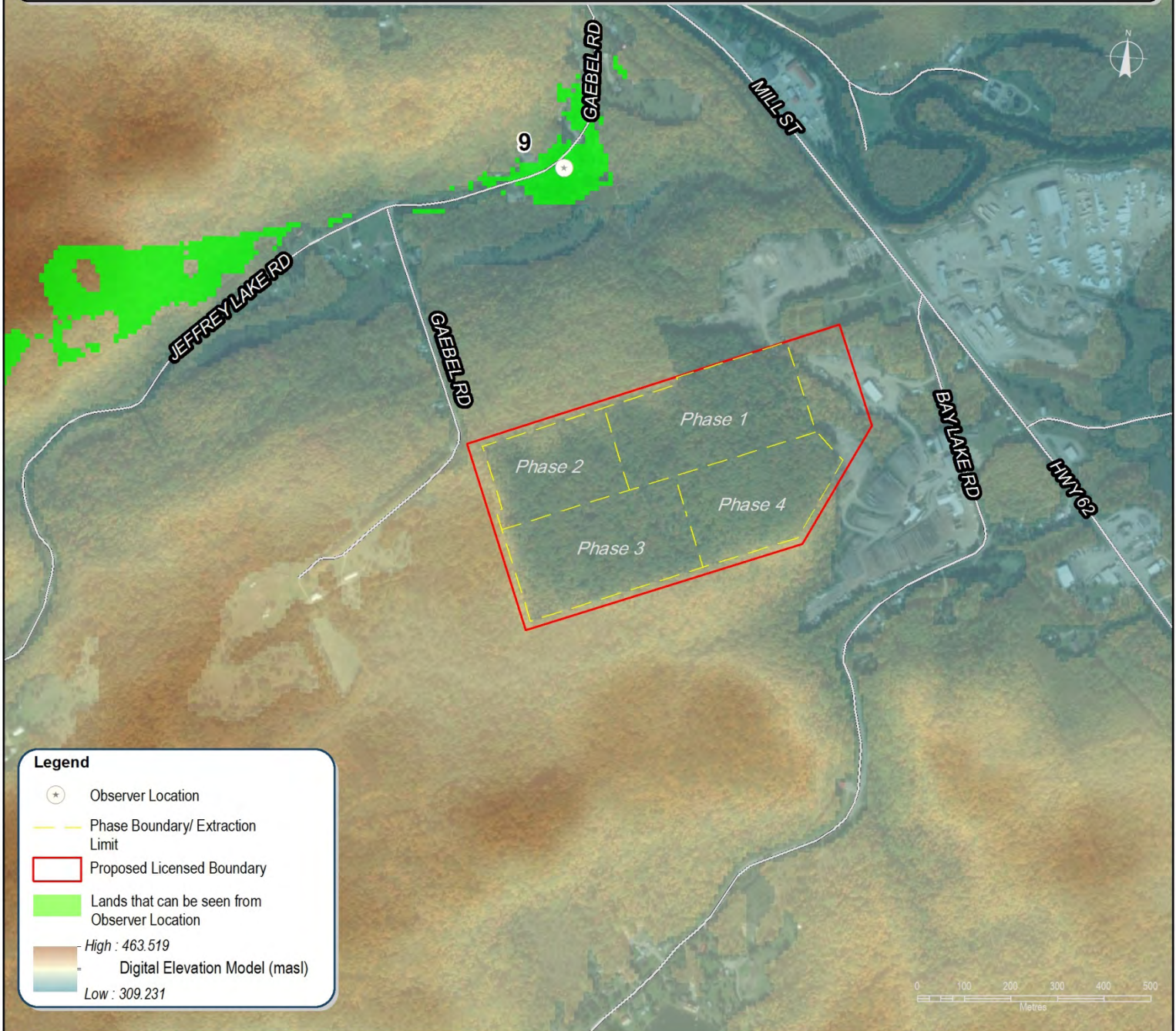


Legend

- * Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- High : 463.519
- Digital Elevation Model (masl)
- Low : 309.231

- As shown on Figure 6i this observer location can see portions of the proposed extraction area located within Phase 2.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis identify that equipment during site preparation and drilling activities in a very small area of Phase 2 will be visible from the observer location.
- Phase 2 is not expected to begin for a minimum of 14 years from the commencement of extraction.
- These views will be 650m from the observer location and these activities are only permitted to occur from 7:00 am to 5:30 pm Monday to Friday.
- Due to the distance, these views will be discrete and of a short term nature and will not result in unacceptable visual impacts.

OBSERVER 9: VIEWSHED WHILE OPERATIONS ARE LOCATED ON THE QUARRY FLOOR



Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- Digital Elevation Model (masl)
 High : 463.519
 Low : 309.231

- The results as shown on Figure 6j were further analyzed to determine if there will be any views of the operations including the processing plant, stockpiles of aggregates, the transfer of aggregate from the quarry face to the processing area by trucks or loaders and the loading of aggregate into highways trucks for shipping to market.
- As part of this analysis all of these activities were located on the quarry floor and the viewshed analysis confirms that these activities will not be visible from the observer location due the elevation of the proposed quarry floor, the retention of existing trees outside of the extraction area and the topography of the area.

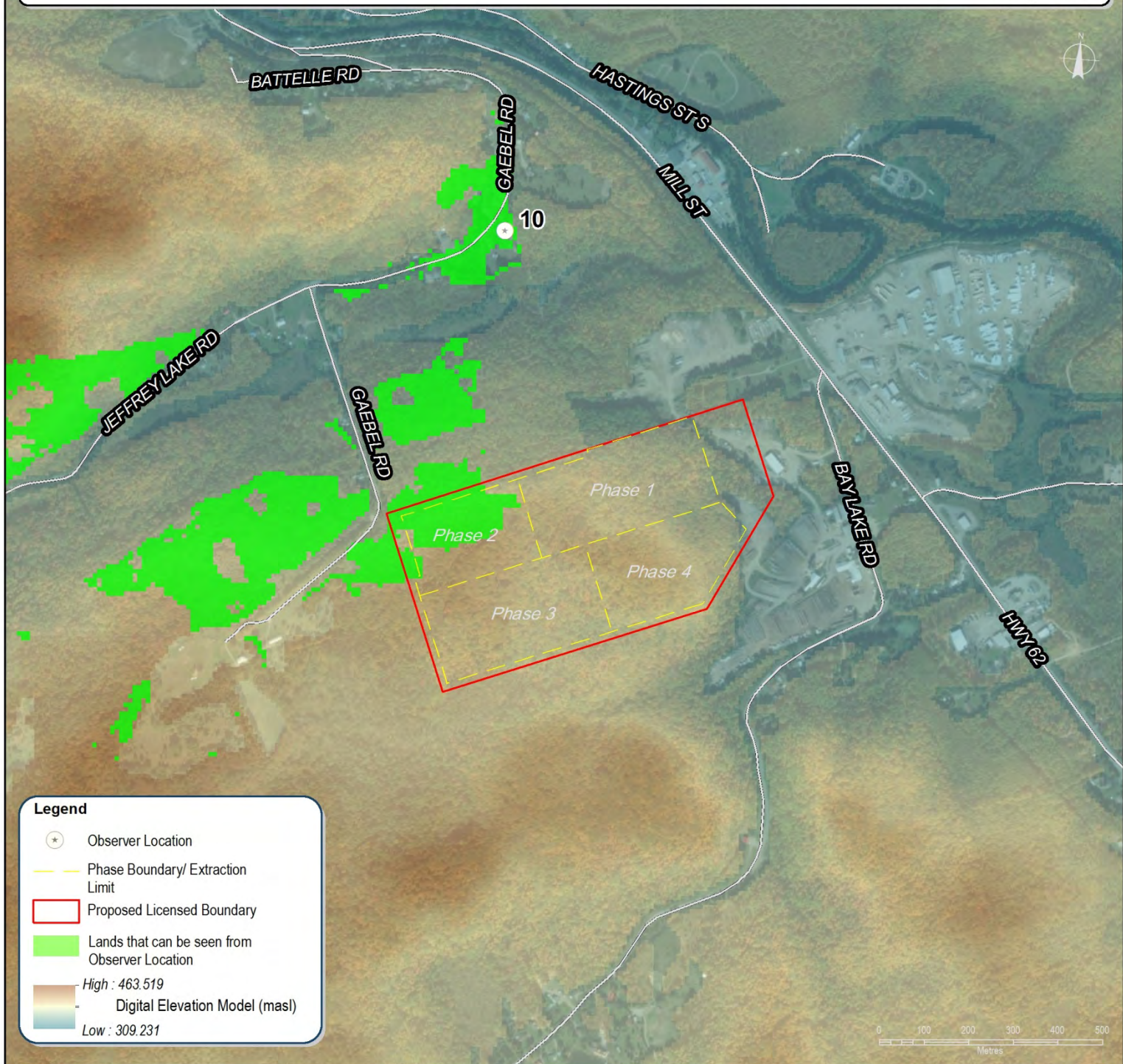
OBSERVER 10: EXISTING VIEWSHED

Freymond Quarry

RR#1, 2287 Bay Lake Road

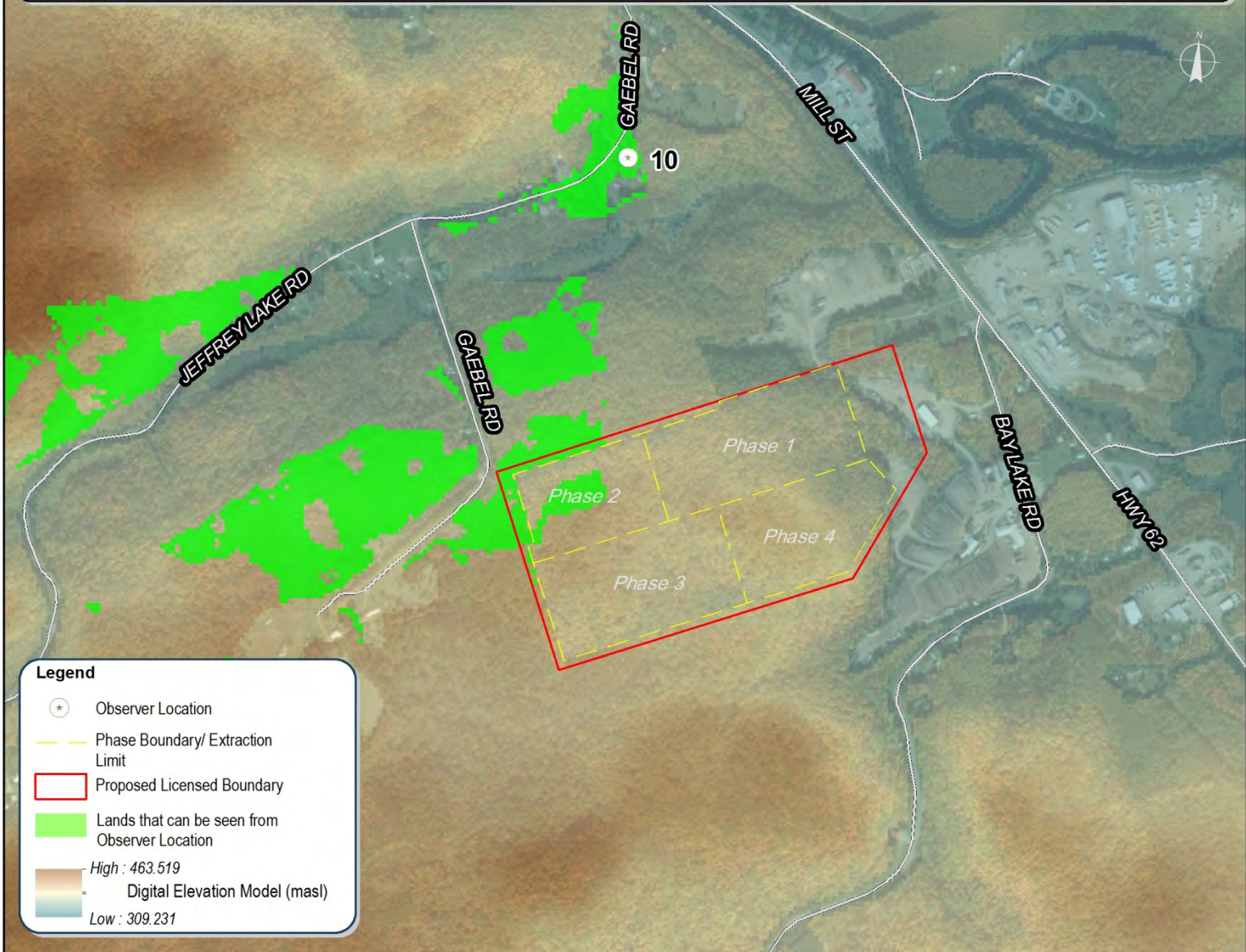
Township of Faraday,

County of Hastings



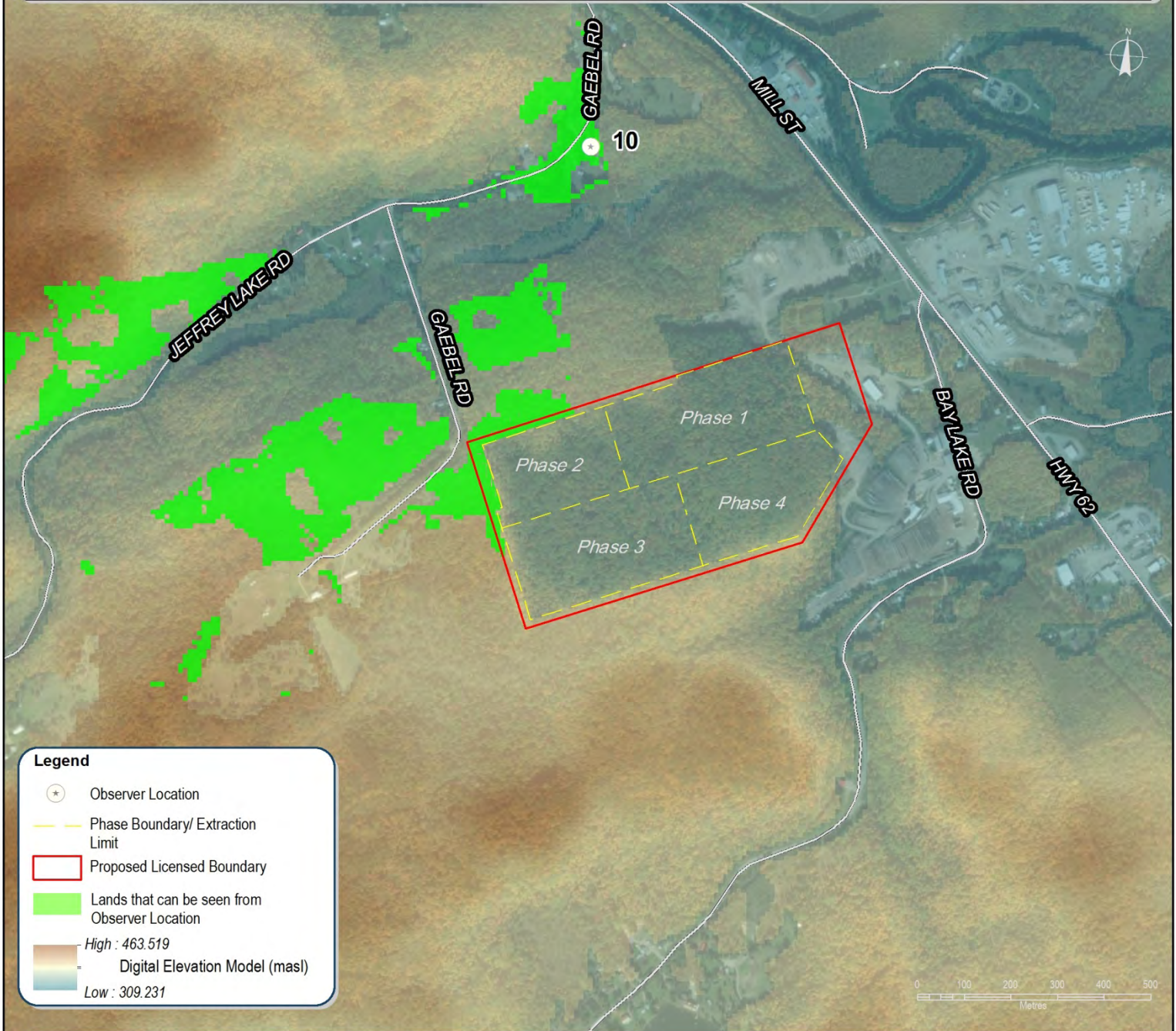
- Observer location 10 is located at an elevation of 337.5 masl.
- Based on the viewshed analysis, this observer has a panoramic viewshed of the area.
- This observer location can also see an area of Phase 2 under existing conditions.
- The green colour represents the area that can be seen from the observer location based on existing conditions.

OBSERVER 10: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE



- As shown on Figure 6l this observer location can see portions of the proposed extraction area located within Phase 2.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis identify that equipment during site preparation and drilling activities in a portion of Phase 2 will be visible from the observer location.
- Phase 2 is not expected to begin for a minimum of 14 years from the commencement of extraction.
- These views will be 670m from the observer location and these activities are only permitted to occur from 7:00 am to 5:30 pm Monday to Friday.
- Due to the distance, these views will be discrete and of a short term nature and will not result in unacceptable visual impacts.

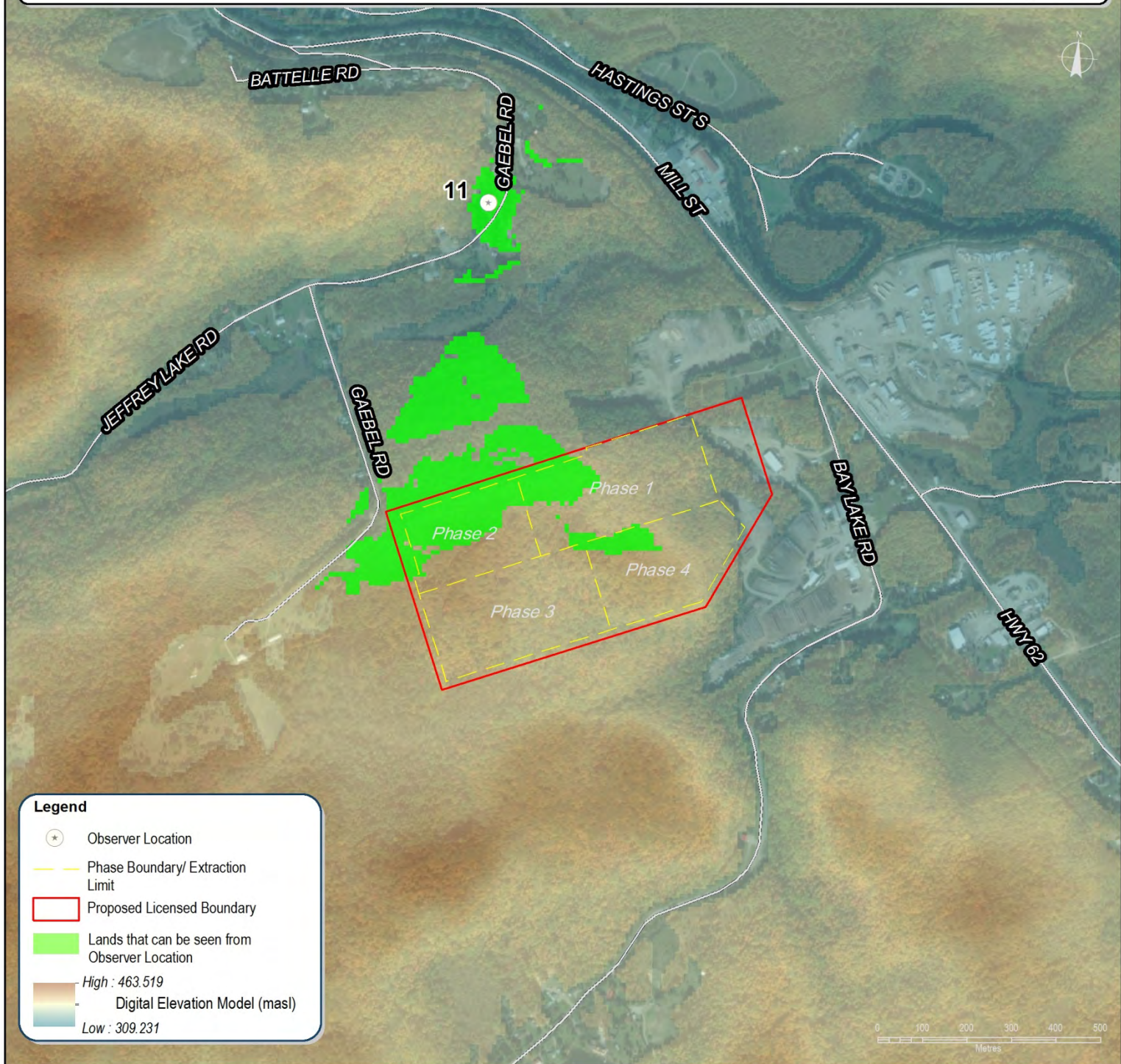
OBSERVER 10: VIEWSHED WHILE OPERATIONS ARE LOCATED ON THE QUARRY FLOOR



- The results as shown on Figure 6m were further analyzed to determine if there will be any views of the operations including the processing plant, stockpiles of aggregates, the transfer of aggregate from the quarry face to the processing area by trucks or loaders and the loading of aggregate into highways trucks for shipping to market.
- As part of this analysis all of these activities were located on the quarry floor and the viewshed analysis confirms that these activities will not be visible from the observer location due the elevation of the proposed quarry floor, the retention of existing trees outside of the extraction area and the topography of the area.

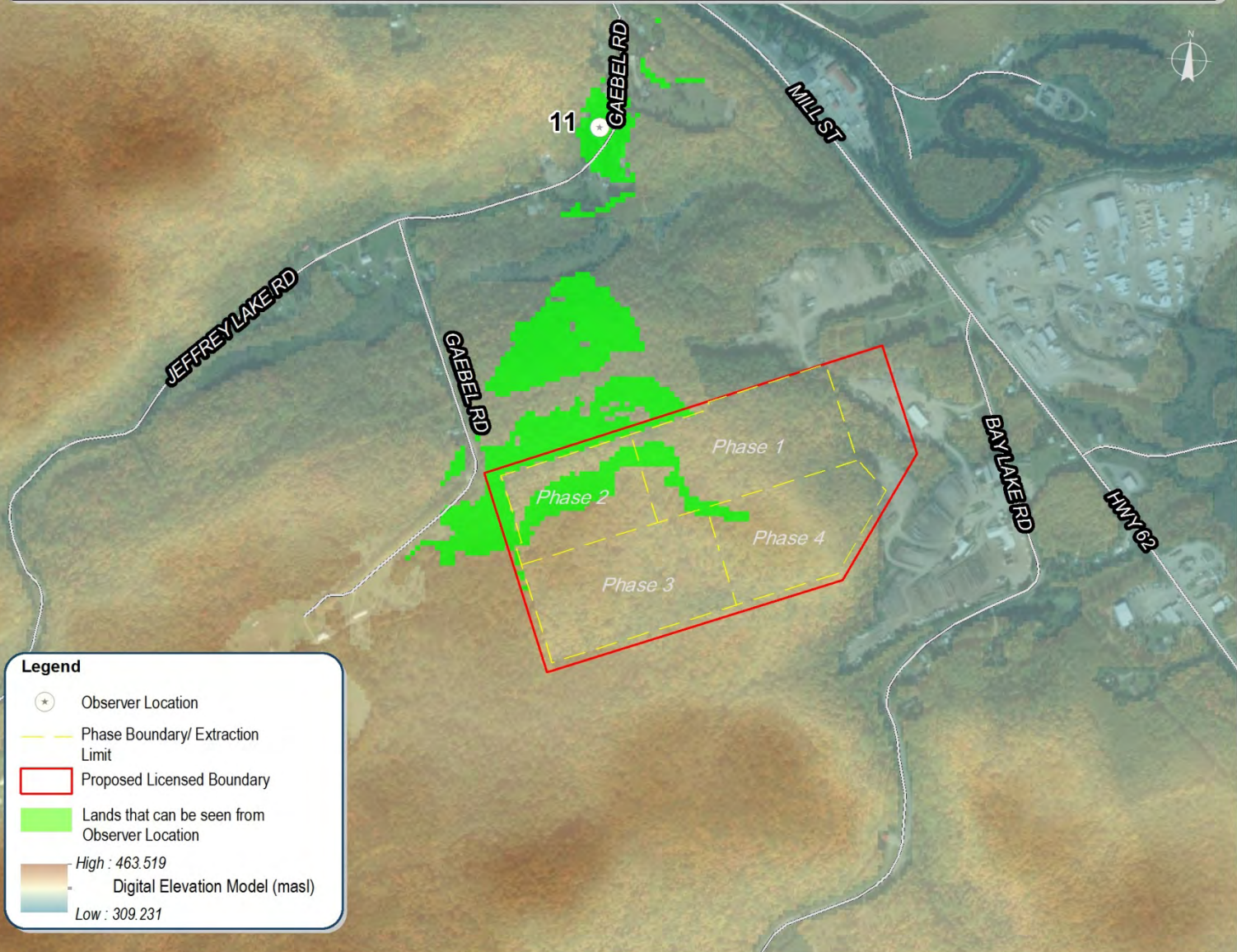
OBSERVER 11: EXISTING VIEWSHED

Freymond Quarry
 RR#1, 2287 Bay Lake Road
 Township of Faraday,
 County of Hastings



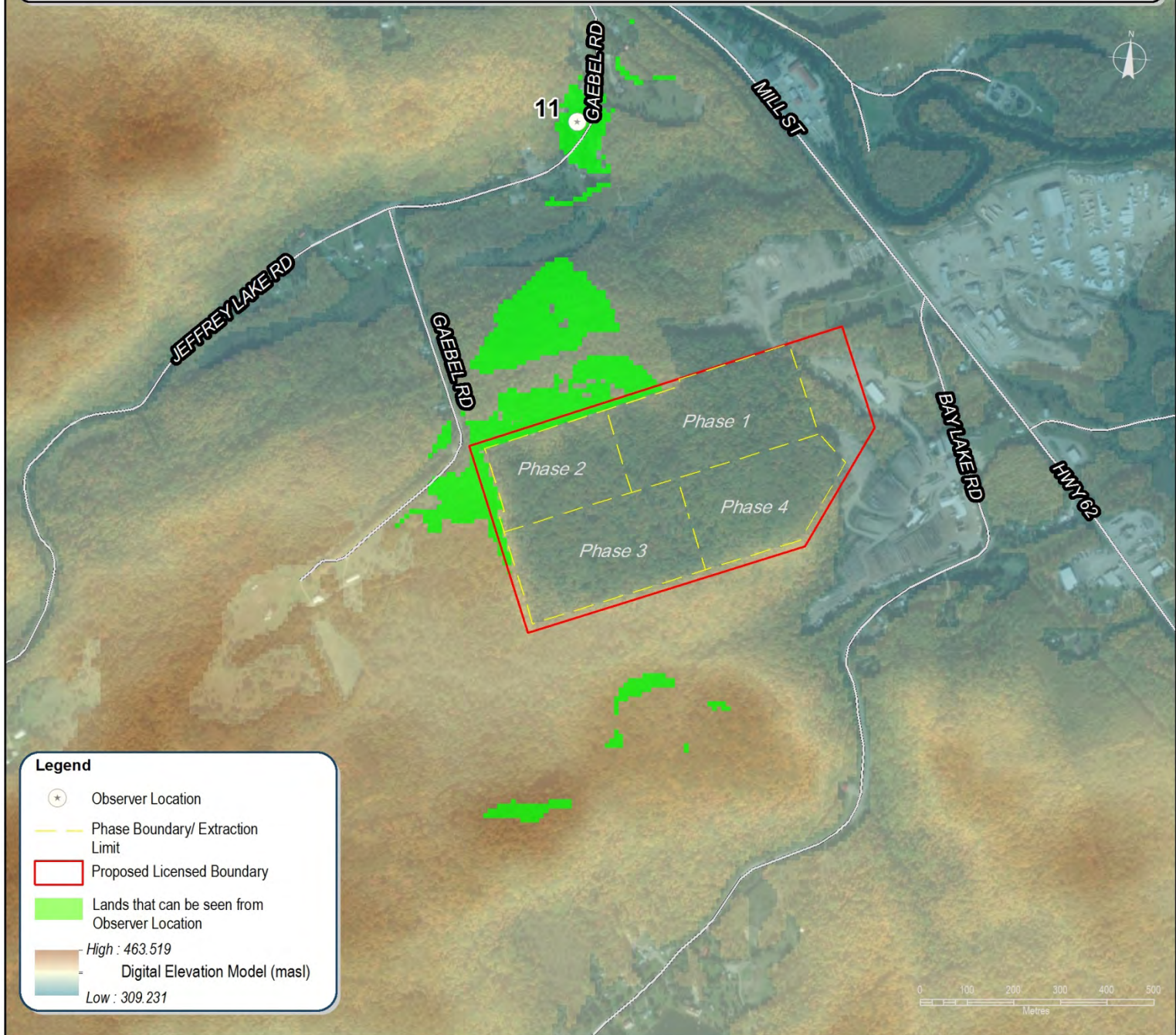
- Observer location 11 is located at an elevation of 337.8 masl.
- Based on the viewshed analysis, this observer has a viewshed predominately towards the subject site.
- This observer location can see portions of Phases 1, 2 and 4 under existing conditions.
- The green colour represents the area that can be seen from the observer location based on existing conditions.

OBSERVER 11: VIEWSHED WHILE EQUIPMENT IS WORKING AT GRADE



- As shown on Figure 6o this observer location can see portions of the proposed extraction area located within Phases 1, 2 and 4.
- As a result, further analysis was completed.
- As part of the analysis the trees were removed from the proposed extraction areas and a 5m high piece of equipment was added at existing grade to determine if the equipment could be seen from the observer location.
- The results of the analysis identify that equipment during site preparation and drilling activities in a portion of Phases 1,2 and 4 will be visible from the observer location.
- These views will be 700m from the observer location and these activities are only permitted to occur from 7:00 am to 5:30 pm Monday to Friday.
- Due to the distance, these views will be discrete and of a short term nature and will not result in unacceptable visual impacts.

OBSERVER 11: VIEWSHED WHILE OPERATIONS ARE LOCATED ON THE QUARRY FLOOR



Legend

- Observer Location
- Phase Boundary/ Extraction Limit
- Proposed Licensed Boundary
- Lands that can be seen from Observer Location
- Digital Elevation Model (masl)
 High : 463.519
 Low : 309.231

- The results as shown on Figure 6p were further analyzed to determine if there will be any views of the operations including the processing plant, stockpiles of aggregates, the transfer of aggregate from the quarry face to the processing area by trucks or loaders and the loading of aggregate into highways trucks for shipping to market.
- As part of this analysis all of these activities were located on the quarry floor and the viewshed analysis confirms that these activities will not be visible from the observer location due the elevation of the proposed quarry floor, the retention of existing trees outside of the extraction area and the topography of the area.

Appendix 1



CURRICULUM VITAE

Brian A. Zeman, BES, MCIP, RPP

Brian Zeman, President of MHBC, joined MHBC as a Planner in 1998 after graduating from the University of Waterloo with a Bachelors Degree in Urban and Regional Planning.

Mr. Zeman provides planning services for all aspects of the firm's activities including residential, commercial and industrial uses while specializing in aggregate resource planning. He has experience in aggregate site planning and licensing and processes relating to aggregate applications.

Mr. Zeman is a member of the Canadian Institute of Planners and Ontario Professional Planners Institute.

PROFESSIONAL ACCREDITATIONS / ASSOCIATIONS

- Full Member, Canadian Institute of Planners
- Full Member, Ontario Professional Planners Institute
- Member, Rotary Club of Barrie
- Member, Ontario Expropriation Association
- Certified by the Province of Ontario to prepare Aggregate Resources Act Site Plans

PROFESSIONAL HISTORY

- | | |
|----------------|---|
| 2014 - Present | President , MacNaughton Hermsen Britton Clarkson Planning Limited |
| 2010 - 2014 | Vice President and Partner , MacNaughton Hermsen Britton Clarkson Planning Limited |
| 2005 - 2009 | Partner , MacNaughton Hermsen Britton Clarkson Planning Limited |
| 2004 - 2005 | Associate , MacNaughton Hermsen Britton Clarkson Planning Limited |
| 2001 - 2004 | Senior Planner , MacNaughton Hermsen Britton Clarkson Planning Limited |
| 1998 - 2001 | Planner , MacNaughton Hermsen Britton Clarkson Planning Limited |

EDUCATION

1998
Bachelor of Environmental Studies,
Honours, Urban and Regional
Planning, University of Waterloo

CONTACT

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bzeman@mhbcplan.com
www.mhbcplan.com

CURRICULUM VITAE

Brian A. Zeman, BES, MCIP, RPP

PUBLICATIONS

- Co Author of the “State of the Aggregate Resource in Ontario Study Paper 2 – Future Aggregate Availability & Alternatives Analysis, Prepared for the Ministry of Natural Resources dated December 2009.

SELECTED PROJECT EXPERIENCE

- Research, preparation and co-ordination of reports / applications under the Planning Act, Niagara Escarpment Planning and Development Act, Oak Ridges Moraine Conservation Act, and the Aggregate Resources Act.
- Facilitate public meeting on major development applications.
- Project management for major development applications.
- Undertake aggregate Compliance Assessment Report inspections and preparation of reports.
- Planning evaluations and analysis for mineral aggregate development and resource management.
- Conduct notification and consultation procedures under the Aggregate Resources Act.
- Aggregate Resources Act site plan amendments.
- Planning evaluations for residential developments.
- Registration and planning of residential developments.
- Planning assessment for commercial, retail, office and industrial developments.
- Restoration planning for pits and quarries and preparation of recreational afteruse plans.
- Research and preparation of reports /evidence for hearings before the Ontario Municipal Board, Environmental Review Tribunal, Joint Board.
- Provide expert planning evidence before the Ontario Municipal Board, Environmental Review Tribunal and the Joint Board.

CONTACT

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CURRICULUM VITAE

Brian A. Zeman, BES, MCIP, RPP

SAMPLE PROJECT LIST

- Activa Group - Laurentian Subdivision, Kitchener
- Adventure Farm – Kirkwall Subdivision, Hamilton
- Aecon - Oliver Pit - Site Plan Amendment/Compliance Assessment Report
- Aggregate Producers Association of Ontario - Caledon Official Plan
- Aggregate Producers Association of Ontario - PPS Review
- Aggregate Producers Association of Ontario - Region of Halton Official Plan
- Blue Mountain Aggregates-Pit Deepening and Expansion
- Brampton Brick - Cheltenham Quarry Site Plan Amendment
- Brampton Brick - Niagara Escarpment Development Permit
- Cayuga Material & Construction - Property Investigation
- Cliff's Natural Resources – Chromite Aggregate Project
- Crisdawn Construction Inc. – Barrie Annexation Lands
- Dufferin Aggregates - Acton Quarry Afteruse Plan
- Dufferin Aggregates - Acton Quarry Expansion
- Dufferin Aggregates – City of Hamilton Official Plan
- Dufferin Aggregates - Milton Comprehensive Zoning By-law
- Dufferin Aggregates - Milton Quarry Afteruse Plan
- Dufferin Aggregates - Milton Quarry Extension
- Dufferin Aggregates - Property Investigations
- Dufferin Aggregates - Region of Halton Official Plan
- Dufferin Aggregates - Town of Halton Hills Official Plan
- Dufferin Aggregates – Town of Halton Hills Zoning By-law
- E.C. King Contracting - Sydenham Quarry Expansion Erie Sand & Gravel - Pelee Quarries
- Gies Construction - Old Chicopee Drive, Waterloo
- Hazad Construction - Conestoga Golf Course Subdivision Hallman Construction Limited - Consent for Church Site
- Home Depot - Barrie, Kitchener, Markham, Mississauga, Richmond Hill and Whitby
- J.C. Duff - Property Investigations
- Kulmatycky Rezoning/Plan of Subdivision/Area Study - Town of Paris
- Lafarge Canada – Brechin Quarry Site Plan Amendment
- Lafarge Canada – City of Hamilton Official Plan
- Lafarge Canada - Dundas Quarry Expansion
- Lafarge Canada - Lawford Pit
- Lafarge Canada – Limbeer Pit
- Lafarge Canada – Mosport Pit Site Plan Amendments
- Lafarge Canada - Oster Pit

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CURRICULUM VITAE

Brian A. Zeman, BES, MCIP, RPP

- Lafarge Canada - Property Investigations
- Lafarge Canada - Warren Merger Due Diligence
- Lafarge Canada-Wawa Site Plans
- Lincoln Village Subdivision - Phase 2 and 3, Waterloo
- Livingston Excavating - Simcoe Pit
- Nelson Aggregates Co., Burlington Quarry Extension
- Ontario Stone, Sand & Gravel Association – Region of Halton Aggregate Strategy
- Ontario Stone, Sand & Gravel Association - Region of Halton Official Plan
- Paris Land Development Limited - Subdivision
- Pitway Holdings - Brillinger Pit
- Pitway Holdings - Naylor/Forman Pit
- Pine Valley Homes - Ainsley Estates, Town of Wasaga Beach
- Pioneer Construction-Aggregate Resources Act Licensing-Thunder Bay
- Region of Durham - Homefounders Subdivision Riverbank Estates Inc. - Subdivision, Kitchener
- St. Marys Cement – Alternative Fuels
- St. Marys Cement - Bowmanville Quarry Deepening
- St. Marys Cement - Bowmanville Quarry Site Plan Amendment
- St. Marys Cement - Clarington Comprehensive Zoning By-law
- St. Marys Cement – Westside Marsh Project
- Steed & Evans - Contractor's Yard/Site Plan Amendment
- Tanem Developments - Bridge Street Subdivision University of Guelph - Canadian Tire
- University of Guelph - Commercial Centre University of Guelph - Office/Research Park
- YMCA – Redevelopment of Site, Barrie
- Zavarella Construction Ltd. - Consent/Rezoning/Plan of Subdivision/Area Study, Town of Paris

CONTACT

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 bzeman@mhbcplan.com
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CURRICULUM VITAE

Nick A. Miele, BLA, OALA, MALA, CSLA, ISA

EDUCATION

1997
Bachelor of Landscape
Architecture, University of Toronto

Nick Miele, a Partner with MHBC Planning, joined the firm in 2004. Mr. Miele has been responsible for designing and managing a broad range of project work locally and internationally for both public and private sector clients.

Mr. Miele's project experience ranges from large scale residential and commercial developments, community and urban design, institutional landscapes, recreational facilities, parks, public open spaces, environmental design and restorations.

Mr. Miele is an accredited Landscape Architect and is a full member in good standing with the Ontario Association of Landscape Architects, Manitoba Association of Landscape Architects and Canadian Society of Landscape Architects as well as being an ISA Certified Arborist.

Highlights of Mr. Miele's career include being a member on an award winning team for environmental design in stormwater management (CSLA), and being a Lead Designer on a short listed team for designs for the 2008 summer olympic games in Beijing, People's Republic of China.

Mr. Miele is involved in overseeing all aspects of project development and management from planning and design through to implementation, construction contract administration, and project close-out.

PROFESSIONAL ASSOCIATIONS

Full Member, Ontario Association of Landscape Architects (OALA)
Full Member, Manitoba Association of Landscape Architects (MALA)
Full Member, Canadian Society of Landscape Architects (CSLA)
Certified Arborist, International Society of Arboriculture (ISA)

PROFESSIONAL DEVELOPMENT

Examining Board Chairman, OALA, 2005 - present
Professional Advisor, OALA, 2001 - present
LARE (Landscape Architect Registration Examination), Advisor, 2001-present.
Teaching Assistant, University of Toronto, School of Architecture and Landscape Architecture, 1997.

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nmiele@mhbcplan.com
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CURRICULUM VITAE

Nick A. Miele, BLA, OALA, MALA, CSLA, ISA

PROFESSIONAL HISTORY

- 2009 - Present **Partner**, MacNaughton Hermsen Britton Clarkson Planning Limited (MHBC Planning)
- 2004 - 2009 **Senior Landscape Architect and Associate**, MacNaughton Hermsen Britton Clarkson Planning Limited (MHBC Planning)
- 2003 - 2004 **Principal**, MEP Design Inc.
- 1999 - 2003 **Senior Landscape Architect**, Terraplan Landscape Architects Inc.
- 1997 - 1999 **Intermediate Landscape Architect**, Terraplan Landscape Architects Inc.

PROFESSIONAL EXPERIENCE

Selected Parks and Open Space Projects

- Riverwood Park – Kitchener
- Oakdale Park, Bridge and Creek Restoration – Oakville
- Morrison Creek Bridge, Stairs and Trail Restoration – Oakville
- Rainbow Creek Park: Bridges and Trail Revitalization - Vaughan
- Dufferin Hill Woodland Trail – Vaughan
- Woodbridge Memorial Park - Vaughan
- Milton Quarry Trail Head Master Plan – Milton
- Agostino Park – Vaughan
- Alexander Park – Vaughan
- Snowbirds Park – Oshawa
- Lakeview Neighbourhood Park – Oshawa

Selected Stormwater Management and Ecological Restoration Projects

- Waterside Marsh Restoration - Vaughan
- Vellore Woods Stormwater Management Facility – Vaughan
- Stormwater Corridor / Habitat Restoration – Georgetown
- Humber River, Pond Diversion and Fish Habitat Restoration - Caledon
- Various storm water management facilities in the GTA, Collingwood, Stayner, Cobourg and Southern Ontario
- Various Private Naturalization / Restoration Plans in Toronto, Vaughan, and Caledon

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CURRICULUM VITAE

Nick A. Miele, BLA, OALA, MALA, CSLA, ISA

Selected Residential Projects

- Riverwood Community - Kitchener
- Vellore Woods Community Masterplan – Vaughan
- Dufferin Hill Community Masterplan – Vaughan
- Vaughan City Centre – Vaughan
- Trafalgar Hills – Georgetown
- Lakeview Park Community – Oshawa
- Edgeley Village – Toronto
- South Unionville Square – Mixed Use / Condominiums - Markham
- Imperial Lofts Condominiums – Toronto
- Penrose Condominium – Toronto
- 176-192 Redpath Avenue Condominiums – Toronto
- Yonge and Wanless Condominiums – Toronto

Selected Commercial & Institutional Projects

- Various Home Depot stores across Ontario
- Various Shoppers Drug Mart stores across Ontario
- Whitby Entertainment Centrum – Whitby
- Colossus Centre, Streetscape Concepts - Vaughan
- Quinte Centre - Belleville
- Global Business Park - Toronto
- Pickering College School, Expansion and Playground Relocation - Newmarket
- Leisure World Nursing Home - Etobicoke
- Metro Toronto Zoo, Children's Wet Play Area Conceptual Design -Toronto
- Nanjing Youth Sciences Centre - Nanjing, People's Republic of China
- Various Commercial Plazas throughout Ontario, Quebec, and Manitoba
- Various Supermarkets in Toronto, Vaughan, Markham, Newmarket
- Rouge Hill GO Station Parking Lot Expansion – Toronto
- Bronte GO Station Parking Lot Expansion – Oakville

CONTACT

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